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Some Impacts of the Specialty Board Movement on Medical Education*

ALAN M. CHESNEY
Dean, Johns Hopkins University School of Medicine
Baltimore, Maryland

Nearly a decade ago I ventured, in an address before this Association, to call attention to what I believed to be one of the shortcomings in the American specialty board movement. The particular points which I tried to make at that time were, first, that the methods employed by the specialty boards for determining who was qualified to be rated a specialist had some shortcomings, in my opinion, and, secondly, that there were other ways which seemed to me to offer better assurance of determining who deserved to be rated as specialists, ways which were based chiefly on local estimates of an individual's qualifications.

In my address I made use of the instrumentality of satire, but if I may judge from what has happened since that time, my protest against the movement was as little effective as that of King Canute against the tides of the North Sea, and I doubt that what I have to say today will be any more effective than what was said at Syracuse in 1938. Indeed, I would hesitate to speak on this subject again, had I not been requested to do so by your secretary at the suggestion of the Executive Council. I hasten to say, however, that the members of the Council must not be held accountable for any opinions of mine expressed at this time!

I propose to direct my remarks today to two particular phases of the American specialty board movement which I happen to regard as pernicious. The first deals with the matter of specialty board certification as a requirement for appointment to staff positions in our hospitals; the second deals with the effect on postgraduate medical education of some of the training requirements for certification which are laid down by the specialty boards. I shall deal with these two questions in the order in which I have listed them.

The Advisory Board for Medical Specialties, which came into the picture some years after the specialty board movement had gotten under way, actually had its birth on February 11, 1934, when its constitution and by-laws were adopted. Article Two of the Constitution stated that "This Board shall act

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists." By and large, the individual specialty boards which have been formed since the establishment of the Advisory Board have followed its advice quite closely to judge from the requirements for certification which have been laid down by them.

In 1935, the Advisory Board for Medical Specialties issued the first of a series of booklets describing the Board and its purposes. In the second edition (pp. 7 and 8) of this booklet there appeared the following paragraphs:

"Preparations for providing medical school and hospital facilities for the required graduate training are going forward actively; surveys of existing facilities for assistant residencies and residencies are being made at the present time in the several specialties; previous activities in the various States respecting the issuance of licenses to specialists are being discussed with a view to their being coordinated with the present activities of the several specialty boards.

Some of the results of the work will be seen from the recent action of the American Hospital Association:

The American Hospital Association officially recommends to its constituent hospitals (1) that there be prepared and made available to hospitals explanatory literature concerning the objects and purposes of the Advisory Board for Medical Specialties; (2) that all hospitals and departmentalized medical services be requested to give serious consideration to the advisability of requiring future appointees to the chieftainship of specialty services (and to such other appointments as may be considered advisable) to hold the certificate of that particular specialty board; (3) that such hospitals be asked to consider, when appointing young doctors to junior staff positions, whether or not their earlier postgraduate preparation has been such as to render them eligible after due experience to apply for examination by one of the specialty boards; (4) that those hospitals offering residencies in the different specialties have the length of service and character of work fulfill the requirements of the Advisory Board for Medical Specialties."

The same statement appeared in the Third Edition of the same booklet, published in 1936.

It required no great imagination to foresee what would happen if those recommendations of the American Hospital Association, which obviously had the endorsement of the Advisory Board for Medical Specialties at that time, were adopted by teaching hospitals generally throughout the country. They were brought to the attention of the Medical Board of the Johns Hopkins Hospital in October of the same year (1936) and that body, after due deliberation voted to approve the following recommendations:

"1. That the Board (Medical Board of the Johns Hopkins Hospital) go on record as opposing the principle that certification by any of the specialty boards should be made a condition of appointment or promotion to any position on the staff of the Johns Hopkins Hospital.

2. That the Board record its adherence to the principle that the services

of the Johns Hopkins Hospital are to be arranged in accordance with the interests of the hospital and not necessarily in accordance with programs for specialty training formulated by the Advisory Board for Medical Specialties or by any of the individual specialty boards.

3. That the Secretary of the Board be requested to notify such other hospitals as he deems proper of the action taken by the Board in this instance."

Those resolutions were sent to a number of other hospitals in the country and it is a matter of interest that in the next (Fourth Edition, 1937) and subsequent issues of the booklet of the Advisory Board for Medical Specialties the recommendations of the American Hospital Association did not appear. Whether there was any relationship of cause and effect between those events I cannot, of course, say. There was a new president of the Advisory Board for Medical Specialties that year, who might well have been responsible for the deletion.

However, the movement to require certification as a condition of hospital staff appointment did not stop at that point. More than one specialty board continued to favor the principle for some years, if one may judge from statements in their official booklets, and it is only recently that some of them have recanted or at least revised their booklets in such a way as to exclude any mention of it.

The resolution passed by the House of Delegates of the American Medical Association at its special meeting in Cleveland in 1946, which dealt with the desirability of having hospitals establish general practitioner services, contained a statement in regard to the matter which we have been discussing which deserves to be mentioned at this point. The last sentence in that resolution reads as follows: "The criterion of whether a physician may be a member of a hospital staff should not be dependent on certification by the various specialty boards or membership in special societies." That statement, according to my way of thinking, represents a timely attempt, and I hope it will prove to be a successful one, to correct what many persons have come to regard as an undesirable trend in American medicine. In any case it put the American Medical Association squarely against the movement to make specialty board certification a requirement of hospital staff appointment.

However the movement is not yet dead,—witness the statement of the Council on Medical Education and Hospitals of the American Medical Association which appeared in the Journal under date of May 3, 1947 (p. 95), and it has certainly received the endorsement of at least one Federal agency.

The requirement that persons appointed on the attending and consulting staffs of the Veterans' Hospitals shall be diplomates of the boards representing their respective specialties, is clearly in line with this movement, and is well known to all of you. Some of you may not know, however, that another Federal agency which operates in the medical field, and disburses funds through state departments of health, is demanding that physicians who are engaged to

carry out certain services under state health programs shall be certified by their specialty boards if they are to be taken on by the state for the job. Let me cite to you a recent case in point about which I happen to have personal knowledge.

The Maryland State Department of Health wanted the Department of Obstetrics of the Johns Hopkins University School of Medicine to carry out a consultant and training service in obstetrics in the counties of Maryland. The university was to be reimbursed for this service by the State Department of Health from funds which came to the State from the Federal government under the maternity and child health program. The actual work was to be done by two full-time members of the staff of our Department of Obstetrics who were entirely acceptable to the State Department of Health, and a budget was agreed upon. The state officials took the matter up with the proper officials in the Children's Bureau in Washington and they approved the plan and the budget, but insisted on inserting in the agreement which was to be signed by the State Department of Health on the one hand, and the Johns Hopkins University on the other, a paragraph which read as follows:

"The Johns Hopkins University agrees that the professional personnel engaged in these activities, with the exception of the obstetrical assistant resident assigned to the Peninsula General Hospital, will be diplomates of the American Board of Obstetrics and Gynecology or eligible for certification by the Board."

The university officials requested that that paragraph be deleted from the agreement, but the Federal officials were adamant. The university officials felt that under the circumstances they could do only one thing, namely, decline to sign the document and it was returned unsigned. Our position was that if we were asked by a duly constituted agency of the State of Maryland to do a job, we should have free choice in the selection of the personnel to do it, and we could not allow ourselves to be limited by such qualifications as had been imposed by the Federal Bureau. Unquestionably the Federal officials in this instance were endeavoring to ensure that the job would be done by competent persons, but it would seem to me far better if they had not tried to impose a rigid standard but had instead left the responsibility to the institution itself. Parenthetically, I might add that the staff members in question had, as a matter of fact, been certified by the Board of Obstetrics and Gynecology, also that ways and means were subsequently found to provide the consulting and training service which the State Department of Health wanted without the university having to yield to the insistence of the Federal Bureau on this point.

My own feeling is that it will be better in the long run if our hospitals do not require specialty board certification as a condition of staff appointment or promotion, and it is to be hoped that all of the specialty boards themselves, which have not already done so, will publicly disavow any endorsement of the practice. I think, also, that it will be unfortunate if Federal agencies which operate in the medical field insist upon specialty board certification for appointment or advancement, even though it may be much easier, when selecting personnel, to accept specialty board certificates of competence at face value, no matter how old they may be, than it is to take the trouble to find the right man for the job.

I wish now to turn to the second point of my theme, namely, the effect upon postgraduate medical education, of the requirements laid down by the specialty boards for the training that must be pursued in order to qualify for certification. Here we deal with a question that is of prime importance to the medical schools, in my opinion.

If you will take the trouble to scan the training requirements set down by the various specialty boards—there are now fifteen of them, ranging alphabetically from anesthesiology to urology, you will see that there runs through these requirements a general pattern or theme, which is something like this: the candidate must spend a period of from three to five or more years of special training beyond the internship, of which one-half to one year is to be devoted by the trainee to work in the "related basic sciences." These "related basic sciences" are usually stated to be the anatomy, physiology, biochemistry, pathology, bacteriology, or pharmacology of the region of the body represented by the specialty in question. It is this requirement in relation to the basic sciences which I wish particularly to discuss. It has, I believe, led to more confusion and uncertainty than any other requirement of the specialty boards, and in support of that statement I would refer you to the editorial in the March 8, 1947, number of the Journal of the American Medical Association (pp. 697 and 698) and the statement signed by Dr. Victor Johnson in the same issue (p. 717), also the article by Dr. George H. Miller, Director of Educational Activities, American College of Surgeons, which appeared in Surgery, Gynecology and Obstetrics in July, 1945. The requirement has moreover led to a not inconsiderable demand upon some medical schools, by candidates for certification, for special courses in the basic sciences, not, in many instances, I believe, because the candidates themselves really want such courses, but solely in order that they may qualify for examination by the boards. Moreover, this demand comes at a time when the medical schools are struggling with diminished resources and are still short of faculty personnel with which to carry on their heavy obligations of undergraduate medical education and medical research. Is this basic science requirement a legitimate one, and if so, just what does it mean when translated into terms of how a trainee is to spend his time and what sort of instruction must be supplied to him?

In scanning the pamphlets issued by the various specialty boards I find some variation in the statements regarding the basic science requirement, and I must frankly confess that if I were a candidate for certification I would have no little difficulty in shaping my program of study to meet it. Some boards have stated the requirement in very broad terms so that it could mean a year's work on a problem in one of the basic science departments; others have stated it in such narrow terms as to indicate that it means formal didactic courses arranged particularly for postgraduate students, and have even gone so far as to offer a detailed outline of the subject matter of such a course. It is not difficult to see what a formal postgraduate course in a basic science means in respect of an increased teaching load upon the staff members of our basic science departments, who already have their fair share of instructional duties in connection with

undergraduate medical education and ought not to have their time for investigation further encroached upon by formal instruction for postgraduate students, *unless an absolute necessity for such instruction can be demonstrated.*

My own conviction is that of all levels of medical education, the postgraduate level should be least standardized. The postgraduate medical student seeking certification by the specialty boards should be encouraged to follow his own interests and should be freed from the necessity of meeting any formal or rigid requirements. The development of the intellectual processes of an adult will take place more rapidly and most surely, in my opinion, when the responsibility for that development is placed upon the individual himself. My own feeling is that the boards would be well advised to review carefully their present training requirements with a view to broadening them in the interest of the individual development of the candidates themselves, and I would suggest that the period of work or instruction in the basic sciences which is now so generally demanded by the specialty boards should not be made a requirement at all, but should be offered as a suggestion only. Then those who have the inclination to do so can seek opportunity to work in one of the basic medical sciences for which they have a special interest or aptitude, and perhaps contribute to the general store of medical knowledge in so doing, and those who have not the inclination can spend their time on other phases of their training.

Please allow me to make myself clear on this point: I am certainly not opposed to a clinician who wants to become a specialist spending a part of his training time working in a basic science department. Far from it. I think that it will be fine if he does, *provided* he really *wants* to do it, and does not undertake such work merely to satisfy a requirement laid down by someone else.

But let us suppose that this suggestion of mine, that the basic science requirement be abandoned, is ignored, as I have every reason to believe that it will be, what can be done to avoid loading up our basic science departments with a lot of instructional tasks which, if carried out, will inevitably affect adversely the research programs of the staff and perhaps the instruction of the undergraduates as well. My suggestion is that if the aspirant for certification is to spend six months or a year in studying the anatomy, physiology, biochemistry, pathology, bacteriology and pharmacology of the region of the body which his particular specialty represents, let those members of our faculties who are already certified in the specialty under consideration be assigned the task of conducting the instruction in the basic sciences as they are related to that specialty. It will be a salutary and chastening experience for those instructors, I dare say, and may even make them better specialists in their own fields. The aspirants for specialty certification might themselves be encouraged to serve as voluntary instructors in the undergraduate courses in anatomy, physiology, pathology and so on, in order to improve their knowledge of those fields as they pertain to their chosen specialty. You and I know that the best way to learn something about a subject is to be obliged to teach it.

The advantages of the suggestion I have made are several, it seems to me. First, it will not be necessary for the medical schools to go to the expense of

obtaining a corps of new instructors in the basic sciences in order to teach advanced courses in those fields to young doctors who are not unmindful of the increased remuneration that goes with certification in some quarters. Secondly, the basic science departments may obtain in this way a few eager young instructors at little or no expense, and perhaps, as a sort of windfall, a new recruit to their fields. Lastly, the burden of instructing aspirants for certification as specialists will fall exactly where it belongs in the final analysis, in my opinion, namely, on the specialists themselves.

May I now tell a story to emphasize this last point? You will, I know, forgive me if it relates to the institution which I represent. The story runs like this: Our first professor of anatomy, Dr. Mall, did not spend much time teaching his students anatomy. He preferred to let them work out their own salvation. This method did not meet with the full approval of some of his colleagues on the Medical Faculty, to say the very least, and on one occasion Doctor Theobald, the professor of ophthalmology, being outraged at a fourth year student's lack of knowledge of the anatomy of the eye, wrote to Doctor Mall saying that it surprised him (Doctor Theobald) that students were graduating from the Johns Hopkins Medical School who knew nothing about the anatomy of the eye although they had taken his, that is Mall's course in anatomy. Mall's reply to Theobald was that it surprised *him* that students were graduating from the medical school who knew nothing about the anatomy of the eye although they had taken *his,* that is Theobald's course in ophthalmology!

We must face the fact that the specialty boards are here to stay. If anyone is so foolish as to think that he can turn the movement around and head it back toward that limbo from which it came he is greatly mistaken. But that doesn't mean that persons like ourselves, who after all are supposed to know something about medical education, have to take at face value the pronouncements of the boards concerning the proper way to train doctors for competence in their particular field. There is more than one way to conduct postgraduate medical education just as there is more than one way to conduct undergraduate medical education. This Association has ever stood for experimentation in the field of undergraduate medical education; it should strongly oppose regimentation in the field of postgraduate medical education. The specialty boards have projected themselves into that field and have attempted, in certain instances, to lay down too rigid programs of training, in my judgment, for those who are seeking certification. These boards are composed almost exclusively of clinicians, some of whom are not members of medical faculties. Yet they do not hesitate to give vent to pronouncements about work in the basic medical sciences. Before they lay down programs of training which involve those disciplines they would do well, I venture to suggest, to consult, officially, their brothers who profess those disciplines. And may I add, in all humility, that they might find it advantageous, at least once in a while, to consult even such lowly creatures as deans?

Basic Science Requirements for Specialty Certification*

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Secretary Advisory Board for Medical Specialties
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Although a multitude of major discoveries contributed to the marvelous progress of medicine since the turn of the century, the advance was also due largely to the normal processes of evolution—division of labor and intensive cultivation of limited fields resulting in specialization. The specialties must therefore be regarded not as abnormal growths, but as normal parts of the great body of medicine. However, they have multiplied and expanded so rapidly during the past two decades that their adjustment to the medical organism presents many difficult problems, for the specialties profoundly affect every field and function of medicine.

Eighteen years ago there were only two examining boards for the certification of specialists. These were the American Board of Ophthalmology, which was created in 1916, and the American Board of Otolaryngology, which was established in 1924. The next specialty board to be organized was the American Board of Obstetrics and Gynecology, which was started in 1930. This was followed by the American Board of Dermatology and Syphilology which was organized in 1932 and by the American Board of Pediatrics, Psychiatry and Neurology and by the American Board of Radiology, which were organized in 1934.

With this increase in the number of specialty boards and the anticipated demand for increased facilities for graduate training, the specialty boards felt the need of cooperating and coordinating their activities with due regard for the interests of the medical profession at large. Accordingly, in 1934, a consultative body known as the Advisory Board for Medical Specialties, was instituted. This board consisted of two representatives from each of the specialty boards, the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the United States of America, and the National Board of Medical Examiners. Its purposes were, and continue to be, to act as an advisory body to the specialty boards and to all who are interested in graduate medical education as related to specialization, to consult with and advise groups proposing the formation of new specialty boards, and to approve or disapprove the establishment of such boards. I want to repeat that this board is a purely consultative and advisory body.

After the institution of this board, the following specialty boards applied for and received approval: the American Board of Orthopaedic Surgery in

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

1935, the American Board of Internal Medicine and the American Board of Pathology, both in 1936, the American Board of Surgery in 1937, and the American Board of Neurological Surgery in 1940. Thus today there are fifteen accepted and approved examining boards. In addition, the American Board of Physical Medicine, which was organized in 1946, has just started to function under the guidance of a committee of the Advisory Board for Medical Specialties until such time as the committee recommends that the new board be given its independence.

As you well know, the primary objective of the specialty boards has been twofold: first, to prescribe minimal standards of graduate training and, second, to ascertain by tests that the candidate for certification has received such training and is competent to practice in his chosen field. To insure these minimal standards of training, the boards in cooperation with the Council on Medical Education and Hospitals of the American Medical Association have set up machinery for the inspection and approval of residency programs. The American Medical Association has generously provided the means and personnel for carrying on this fine work. Today, there are more than 900 approved institutions for residency training, and they can accommodate more than 10,000 resident graduate students. It is clear that the aims of specialty boards are being pursued with increasing success, although that success and the means employed to obtain it have given rise to certain secondary problems.

One of these problems is the current tendency among certain large groups of practitioners to question the purposes and ideals of the specialty boards. Some hospitals in their zeal to improve the quality of their service have demanded certification by one of the specialty boards as a prerequisite to membership on the staff. This bars the general practitioner from caring for his patients in the hospital to the extent of his ability and is such a manifest injustice that it has been given serious consideration by many medical organizations and the specialty boards. Various corrective measures have been proposed, and a promising approach toward a solution of this problem appears to be through the medium of an organization composed of general practitioners which would have high standards for membership. This organization should take steps to protect the rights of the general practitioner to engage in surgical and medical procedures for which he is qualified. Such an organization, I am informed, is now in the process of formation. To adjust the relations of this new organization to other organizations, its by-laws provide for a Medical Co-Ordination Committee composed of certain officers of the organization and representatives from other medical fields. Among its purposes are the promotion and maintenance of high standards in the general practice of medicine and surgery and, as a means to this end, assistance in providing postgraduate courses for general practitioners. Membership is restricted to physicians who can prove their competence by training and experience and is limited to a period of three years. To be re-elected at the end of each period, the member must show that he has spent at least one hundred

and fifty hours in postgraduate study during the period. This will be of interest to the Association of American Medical Colleges for it may entail the inauguration of new courses or readjustment of those already existing.

Another problem arising from specialization and one to which we are expected to give particular attention today is that of instruction in the basic medical sciences as a feature of graduate training for the specialties. When the specialty boards were established and the individual programs of graduate training were considered, it was realized that candidates for certification should have a lively knowledge of the basic sciences related to the several specialties. To assure that graduate students would receive appropriate instruction in these sciences, rather rigid requirements as to the amount and character of instruction were prescribed by several of the boards. Some required that the student be given formal courses and this caused some confusion and occasional hardships in certain institutions. In short, all the programs of graduate training for the medical specialties are still open to revision, amendment and constructive criticism.

At the annual meeting of the Advisory Board for Medical Specialties in Chicago, in February of this year, the basic science requirements were the theme of a round table conference which was participated in by representatives of various institutions engaged in medical education. Although no definite action was taken, many of us felt that the air had been cleared and that some of the fog had been lifted, while other participants and observers felt that certain questions had not been answered. No doubt that is why I, as Secretary of the Advisory Board, have been invited to appear on this program.

For our information, I have assembled the basic science requirements as set forth in the booklets of the fifteen accepted specialty boards and as confirmed or modified by responses to a brief questionnaire sent to the secretaries of the boards.

Thirteen of the fifteen accepted boards require candidates for certification to furnish evidence that they have an adequate knowledge of basic medical sciences, and the boards request teaching institutions to give appropriate instruction in those sciences during the residency training.

Nine of the fifteen boards merely demand that their candidates have knowledge of the basic sciences related to the specialty, the number of subjects named varying from three to twenty. Eight of the nine do not specify the exact time that should be devoted to these basic sciences; one board suggests six months.

Three of the fifteen boards require knowledge in five basic sciences—anatomy, pathology, physiology, biochemistry and bacteriology. One of the three specifies that no more than six months, or a sixth of the total training time, should be devoted to these subjects; one allows twelve months in the branches named plus pharmacology, and one is silent as to time.

Two of the fifteen boards include no specific requirements as to basic sciences in their booklets. Only one board demands formal didactic courses of instruction in the basic sciences.

All the boards feel that training in the basic sciences should be given concurrently with, and as a part of, the residency training program. On the other hand, many of the boards will allow credit for formal postgraduate courses in the basic sciences which are given by many of the medical schools and vary from six to nine months in length. Four of the boards, however, allow a maximal credit of only six months for such courses.

These courses have been set up by medical schools at considerable effort and expense and have served a most useful purpose in the postwar emergency. Hence the recommendation of the specialty boards that instruction in the basic sciences be given as a part of the residency training is not to be construed as a reflection on the wisdom of those who instituted the formal courses.

It seems to me that the proposed organization of general practitioners, which requires its members to take one hundred and fifty hours of graduate instruction during each three-year period offers a splendid opportunity to the medical schools to serve the medical profession substantially by concentrating their efforts on formal postgraduate courses for those general practitioners who are striving nobly to raise their standards and thereby enhance their prestige.

Graduate and Postgraduate Medical Education*

CURRIER MCEWEN
Dean, New York University College of Medicine
New York, N. Y.

The great interest in the subject of graduate and postgraduate medical education is illustrated by the frequency with which it appears on the programs of meetings such as this. That same frequency, however, makes it a somewhat frustrating subject for the speaker, who knows full well that whatever he may say has been said most thoroughly before. I have taken part in two conferences on graduate and postgraduate medical training in the past six months—one held at the New York Academy of Medicine as part of its centennial celebration and the other arranged by the W. K. Kellogg Foundation and the University of Michigan. It was because of my participation in those conferences that I was invited to be on the program today; and I think, therefore, that my best course will be to present some of the questions raised and ideas expressed at those meetings, and describe our program and our point of view at New York University.

In the first place, there are many points on which there is essential agreement. We will agree, certainly, that the function of the undergraduate period of training is to provide a general background of medical education and that specialty training belongs to the graduate period. We all believe, I am sure, that the best way to train specialists is through properly organized residencies, preferably in hospitals affiliated with medical schools; and that fellowships provide an excellent opportunity for experience in research and teaching. We will agree, too, that the medical colleges share with the medical societies an important responsibility for the continuing education of physicians.

On the other hand, there is a really formidable array of questions, the answers to which are less clear. For example, what is the place, if any, of the formal graduate courses offered by medical colleges in preparation for, or in association with, a residency? And is there need for sso-called basic science courses as part of such a program of specialty training? Is it desirable to offer advanced degrees for this work, and if so, what should their relationship be to certification by the various specialty boards? What about the boards, anyway —do their advantages or disadvantages predominate? And as to the continuing instruction of the graduate physician, how can it best be done?

With this as introduction, I want to relate briefly what we are doing in this field at New York University. I have selected this approach in the belief that I can most satisfactorily discuss these questions in connection with the aims and successes and shortcomings of our own program, which, naturally, is the one I know best.

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*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

Formal graduate medical instruction at New York University began in 1914, through the efforts of Dr. Arthur M. Wright, then associate professor of surgery, who saw a need for training a larger number of surgeons than the approved residencies of the country could then provide. Subsequently, Dean John Wyckoff aroused the interest of the faculty in a wide graduate program in all clinical departments. This consisted of instruction in the basic sciences, largely through participation in research, plus clinical experience obtained through residencies or staff appointments. The time required was from 3 to 5 years, depending on whether the work was done on a full time or a part time basis. A candidate who also satisfactorily passed written and oral examinations of graduate type and wrote and defended an acceptable thesis was awarded the degree of doctor of medical science; but it is worth pointing out that the purpose of the degree was to provide evidence of qualification as a specialist almost as much as that of scholarly attainments.

The faculty was never satisfied with this "certifying" aspect of the advanced degree, however, and when the various American specialty boards took over this function the advanced degree was discontinued temporarily. Postgraduate courses subsequently were started in association with a number of affiliated hospitals and, in 1944, when the extraordinary needs of returning veteran physicians began to be appreciated, the work was rapidly expanded at both the graduate and postgraduate levels.

The program as it is today may conveniently be subdivided for discussion purposes into (1) graduate instruction, (2) what we call our regional hospital plan, and (3) postgraduate instruction. The program of instruction at the graduate level can, in turn, be discussed under the headings of fellowships, residency training and formal graduate courses.

FELLOWSHIPS: The fellowships are of standard type and require little comment. We believe that this type of training is the ideal one for the especially gifted man or woman who wishes experience in research and teaching and who, usually, is looking toward a life of at least part time academic work. At the moment, there are some 50 such fellows working in basic science departments and in the research laboratories of clinical departments on fellowships provided by such varied sources as our own and foreign governments, foundations, special endowments and departmental funds. In the case of those who plan careers in one of the clinical branches, the fellowships must, of course, be combined with appropriate residencies.

RESIDENCIES: The residency program also follows the usual pattern and needs little explanation. There are approximately 200 residents in the various hospitals affiliated with the college in whose training the faculty plays the usual important part.

FORMAL GRADUATE COURSES: When we come to a discussion of the so-called formal graduate courses, however, I am less sure of the ultimate value of what we are doing. The present expanded program of such courses at New York

University started in 1945, and was designed to meet the needs of returned physician veterans. There are now 167 students enrolled in courses covering the various specialties. Most of the courses require full time work for a full academic year and are designed to prepare the student for subsequent residency training. From 40 to 70 per cent of this time is devoted to study of the preclinical sciences as applied to the specialty in question. I am aware, of course, of the belief of many that this type of work in the preclinical sciences has no place in the training of the specialist and that basic science experience should come as part of the residency in the form of opportunities for research. I agree, in part, and, indeed, that is the way it is done by many of our residents in Bellevue and Goldwater Memorial Hospitals. On the other hand, many candidates are not suited to research; and, furthermore, the courses are intended primarily for men whose residencies will be in hospitals where they will have little or no opportunity for laboratory investigation. I should add our conviction that basic science instruction for graduate students in medicine is most effectively given by clinicians rather than by members of preclinical departments. In our own courses, these instructors are men who, in addition to being qualified in their particular specialty, have spent from one to five years as fellows in the preclinical sciences they teach.

We have no doubt about the value of these courses to the returned veteran who may have had little opportunity for medical work for several years and for whom they were planned. However, there appears to be no tendency for the demand for the courses to diminish, and the question arises whether this type of instruction should be continued so long as the demand remains. Clearly, the courses are designed for the training of specialists and that training is based on the residency. Probably, the best residencies in university centers do not call for separate, formal courses of instruction in the medical schools; for the necessary background in the basic sciences and an adequate approach to the specialties will be provided as part of the residencies themselves. It seems to me, therefore, that the need for formal graduate courses in the future will depend largely on whether or not the quantitative need for specialists throughout the country is greater than can be met by the university hospitals. If the university centers cannot fill the need themselves, they have a responsibility to provide supplementary training designed to augment the residencies in other hospitals.

What the needs of the country are is not accurately known. Answers to a questionnaire sent out by the Council on Medical Education and Hospitals of the American Medical Association and reported by Dr. Victor Johnson,[1] suggest that there should be 52,800 specialists to care for the people of the United States. Against this figure may be set the 26,000 specialists now certified by the American Boards, plus the 13,000 physicians who limit their practice to a specialty but who are not certified. There are, in addition, a larger number of physicans who devote part of their time to a specialty, but for the purposes of

1. Personal communication.

this discussion I believe they may be excluded. These data are admittedly very rough estimates, but they are, at least, an indication of what the need may be. If, then, we may assume that the medical schools and their closely affiliated teaching hospitals can train less than 2,000[2] finished residents each year and that 1,000 specialists are lost annually through death and retirement, it would seem that there will be a need for advanced residency training in hospitals outside the university centers for some years to come, and, hence, a place for formal graduate courses. It may be added that, whether or not residency training in the non-university hospitals is, in the long run, desirable, it is, in fact, being done and will continue. For these reasons we believe that, at least for the time being, we should continue our graduate courses, but that, in addition, we should be experimenting with other plans which may more nearly meet future requirements.

THE REGIONAL HOSPITAL PLAN: One such plan, which we have in progress currently, we call the Regional Hospital Plan. The purpose is to help raise the standards of medical practice in the area we serve, by cooperating with selected hospitals in surrounding suburban and rural areas for the training of their staffs. Both graduate and postgraduate instruction is involved. The hospital residents receive a year of graduate training at the college as the first year of their residencies. During this period the hospital must be responsible for the room and board and travel expenses but tuition is waived. In their turn, the hospital agrees to meet standards set by the college in providing training opportunities during the subsequent part of the residency. The college, furthermore, undertakes to send members of the faculty for monthly clinical meetings at the hospitals and to provide salaries for a carefully selected junior member of the hospital staff who serves as coordinator of the interns and residents training. At the present time this program is supported by a grant from the W. K. Kellogg Foundation, but if it proves worth while it is expected that the cost will eventually be borne by the hospitals. Seven hospitals of from 100 to 265 beds in communities within a radius of 100 miles of the college and ranging in population from 2,300 to 58,000 have thus far entered the plan. We are watching this experiment with very great interest and probably will not wish to include many more hospitals until its value has been thoroughly tested.

POSTGRADUATE INSTRUCTION: One way in which the faculty is engaged in postgraduate medical education has just been mentioned in the discussion of the Regional Hospital Plan. The other ways in which we are contributing to the continuing education of the practicing physician follow conventional patterns. We believe sincerely in the importance of this work and consider it no less a part of our job than undergraduate and graduate instruction. We believe, however, that it does not mix well with them and, hence, these shorter courses are given in wards and hospitals not used for other teaching and, very largely, by a separate staff of teachers. This has inevitably meant that full time mem-

2. This figure was obtained by computing and adding the finishing residents in hospitals known to be closely linked both academically and geographically to medical schools, using the lists reported in J. A. M. A., 134: 1336-1375 (Aug. 16), 1947. The actual total arrived at was 1,601.

bers of the faculty have not participated to any great extent. It is probably true, too, that the postgraduate faculty members are not always selected with the same care given to the appointment of the undergraduate teaching staff. However, in a large city like New York, it is entirely possible to enlist the help of a competent and sincere group of men and women on the staffs of affiliated hospitals. Two types of courses are given: general courses of refresher type which are open to all licensed physicians, and intensive short courses in specialized subjects, which are open only to those qualified in those branches. Last year, approximately 700 postgraduate students enrolled in 53 courses lasting from one to six months.

CERTIFICATION AND ADVANCED MEDICAL DEGREES: At the beginning of these remarks, I raised the question so frequently pondered today whether the advantages or the disadvantages of the specialty boards are the greater. That the boards have introduced certain problems is clear, but I believe that most of them are only partly the fault of the boards. For example, the boards are blamed for the disturbing tendency toward specialization and away from general practice; yet the tendency was evident long before the boards were established and who can measure the added impetus the boards have given and say that the situation in 1947 would not have been essentially the same as it would be had they not existed? To my mind, there is a need for the certification of men qualified as specialists, and I believe that the boards have contributed to the raising of standards of medical practice in this country. But whether I am correct in this or not, they exist and will remain, and therefore, our plans for graduate training in the medical colleges must work in cooperation with them. Happily, this should not be difficult for, particularly in recent years, the various specialty boards have shown an increasing desire to function essentially as certifying bodies, leaving the question of proper training in the hands of the medical colleges and such bodies as the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association.

With the problem of certification of the specialist taken care of by the boards, is there any place for advanced degrees in medicine? We believe that there is, but that the degrees should be awarded solely in recognition of scholarly attainments in accordance with standards no less high than those for the doctorate of philosophy. During the past few years we have again authorized the granting of the degree of doctor of medical science at New York University, but to date no one has received it and only 3 candidates are working toward it.

CERTIFICATION FOR GENERAL PRACTICE: I should like to speak briefly about one other topic now much discussed, namely that of the training and certification of the general physician—a term preferable, we believe, to "general practitioner." From time to time it is suggested that there should be set up a "board of general practice," in the hope that such a device would encourage men to enter this essential type of practice. I cannot believe that this could be successful and doubt its necessity, but I am convinced that the medical schools can do

much to help, for the responsibility is ours and our students will tend in the direction toward which we point them. As an experimental approach to the problem, we have formed a group practice unit known as the New York University Medical Group and composed of members of the faculty. Since the unit functions principally on a prepayment basis, the most important members of it are the general physicians who serve the subscribers in the role of family physician. Fourth year undergraduate students working with these physicians and even making some visits with them to see patients in their homes, will, we believe, have an introduction to the best features of general practice which we could not previously give them. And, at the graduate level, we believe that able young physicians who spend two or three years with the Group, during which time they will receive adequate salaries, will have the best kind of training to be general physicians. They will have to know their patients not only as individuals who are ill, but also as people and members of families. They will have full responsibility for their patients yet will always have available highly trained specialists who will not only see their patients, but will see those patients with them.

I have not mentioned the internship but, of course, it has an important part in every phase of graduate training I have discussed. We believe that we must gear our internships in Bellevue Hospital primarily to fit the specialized residencies which follow them, for, in common with all medical faculties, we have a particular responsibility to train specialists, teachers and investigators. At the same time, we believe that we should encourage, in Bellevue and our affiliated hospitals, mixed internships of one to two years duration which, followed by experience in our own and in other group practice units, can provide sound training for general practice.

Medical Responsibility for Training in Clinical Psychology

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I. INTRODUCTION

In recent years clinical psychology has developed almost as though it were a discipline in its own right. In the long run it may prove to be wiser to establish clinical psychology as a medical discipline, closely integrated with medicine in general, with psychiatry in particular, with psychiatric social work, criminology, education at all levels, industrial counselling, and last but not least, with academic psychology. The present study will be focussed primarily on the reasons why the training of clinical psychologists should be in part at least the responsibility of our medical schools.

Toward this newcomer the general medical attitude tends to be uncomprehending; and psychiatry is often grudging, reluctant, suspicious and excluding. This has led the clinical psychologist to attempt to organize his own training, drawing on nearby medical facilities, but only to the limited degree to which they are willing to cooperate (as in the new Department of Social Relations at Harvard). This gives an appearance of progress; yet the concrete clinical experience which is indispensable for the clinical psychologist can be gained only in hospitals and clinics. Furthermore the spirit of therapeutic responsibility and the old and hard-won medical tradition of unsparing self criticism are indispensable to the clinical psychologist; and these too can be acquired only under medical auspices.

Moreover, certain phases of clinical psychology are as important in the education of the physician as are certain parts of medicine for the clinical psychologist. Therefore, it would seem to be necessary to make more psychology a prerequisite for admission to medical school, to incorporate some clinical psychology into the medical curriculum itself, and to give the clinical training in clinical psychology in medical schools and teaching hospitals. It would seem likely that out of this experience a new medical-psychological curriculum will gradually evolve within the framework of the regular medical curriculum. The student would matriculate for this only after he has received a B. A. or perhaps an M. A. in psychology. The additional training provided in medical school would earn credits towards a Ph. D.,[1] and also toward a new professional degree, i. e., a D.P.M. (Doctorate in Psychological Medicine).

Such a plan would have both scientific and practical advantages: scientific, because men so trained would bring something to psychiatry which the medical psychiatrist cannot bring; practical, because without such a program, we will never have enough specialists in the psychological disciplines and in their therapeutic, preventive and social applications to meet the community's steadily growing demand.

Finally, if medical education fails to accept this responsibility, then in the course of the next twenty-five years there is likely to be an independent com-

petitive development of clinical psychology in opposition to medical psychiatry. This would set back the hands of the clock scientifically, and would be a grave loss both to science and to the community as a whole. (Such a development is already foreshadowed by the suggested by-laws of the American Psychological Association, which, if accepted, would establish certification in clinical psychology with little coordination with medical education.)

This topic opens up many difficult practical and scientific problems. Perhaps the time is ripe for representatives from allied disciplines to work out various alternative programs, and to enlist the backing of foundations, medical schools and universities in pilot tests of the value of the different plans.

II. THE CLINICAL PSYCHOLOGIST

What is the clinical psychologist, and what role does he play? In the first place, he can perform any of several functions depending partly on his previous training and background, partly on his individual gifts, and partly on the special situation in which he happens to be working at any particular time. He may be (a) an expert in the routine use of certain complex diagnostic psychological instruments. Here his function is analogous to that of the electroencephalographer, the cardiologist, the radiologist, the clinical laboratory man, etc. Or (b) he may be a member of a research team, using similar instruments for special studies of sociological, psychiatric, or psychosomatic problems, (i. e. cultural, economic, medical, surgical and psychological interrelationships). Here he may be called on to examine random or cross section samples of the populations of hospital wards, or of various groups in the community, or special groups with special talents, special illnesses, etc. Finally, (c) he may be a member of a therapeutic team.

In practice, these three roles always overlap, and the investigator of human misery can rarely, if ever, avoid assuming some therapeutic responsibilities. Forces within the psychologist himself and the external pressures which arise out of human needs together force him to intervene in the problems of those he tests and examines. Indeed, the greater his diagnostic acumen, the greater is this trend. The test instruments of the skillful clinical psychologist bring into clear focus many obscure elements in the constellation of a neurosis. Latent compulsions and latent sensitizations which often escape superficial examination come into view. Quantitative impressions are gained of the relative strengths of various unconscious forces, thus helping to indicate the alignment of different facets of the personality. Consequently, if the clinical psychologist is himself a normal human being with normal human sympathies, whenever he summarizes his impressions of a patient's neurosis, he must inevitably weigh the possibilities and means of therapy. Frequently he sees an opportunity for early preventive treatment which might avoid years of illness. There would be something defective in the emotional make-up of the clinical psychologist whose mind turned away from this human need and was contented with diagnosis alone. In psychiatry and clinical psychology, even more than in internal medicine, there can be no such thing as a diagnostician devoid of therapeutic impulse. Only when the clinical psychologist is part of an active clinical group, and can immediately

turn such a therapeutic problem over to someone else, is he freed of this inner necessity to bring some help himself.

This therapeutic impulse is found in all those who practice the psychological disciplines, whether as psychiatrist, clinical psychologist, or psychiatric social worker. We come into this field weighted with the emotional residues of our own earlier internal stresses. Consequently, we identify with patients, and try to cure ourselves in curing them. In this there can be much danger; yet without some measure of such identification there is reason to doubt whether anyone could practice psychotherapy effectively. At all events, for better or worse, this intrapsychic pressure is present and operates in all good clinical psychologists and psychiatric social workers just as it operates in every good psychiatrist.

Furthermore, the clinical psychologist is up against the practical fact that having recognized and described a patient's neurosis, and having in some measure identified with him, more often than not he has no place to send the patient for treatment, whether privately or on a clinic basis. Under such circumstances, it is inevitable that the best workers in the field of clinical psychology will find it impossible not to attempt to help the patients they examine.

Anything that is inevitable should be recognized and dealt with. There can be no putting our heads in sand about it. Furthermore, if we fight against it blindly we will fail; or if we were to succeed, our very success would only stunt the development of clinical psychology. First rate men would avoid the field, or else they would defy our medical biases and develop quite outside of medical auspices. It would seem to be wiser, therefore, for medical schools and teaching hospitals to undertake to train clinical psychologists to be competent and skillful psychotherapists, offering them those elements of medical education which are essential both for their scientific development and for the protection of patients.

III. STRATEGY

For many years medicine has been trying to rid the community both of unscrupulous, illegal lay charlatans, and of the sincerely deluded but fanatical therapeutic fadists. This has involved organized medicine in a general drive against all forms of lay healing. With this general tendency no one can quarrel. So great, however, are the community needs for men and women who are trained in the therapeutic applications of psychological and psychiatric knowledge, that it may be wise to exempt the clinical psychologist and the lay analyst from this general trend, by training them under medical auspices for their necessary therapeutic roles.

However, the approach to any such goal must include a consideration of timing and strategy. This is particularly necessary because it is important in such a program to avoid jeopardizing the integration of internal medicine, psychiatry and psychoanalysis, which is such a healthy feature of American medicine. Indeed, out of fear of disturbing this rapport, some colleagues who privately agree in principle are, nonetheless, reluctant to advocate publicly any participation of clinical psychologists in psychotherapy. Nevertheless, the question of his role

in therapy comes up every time a clinical psychologist is employed in any capacity whatsoever: to-wit, in industry, in pediatrics, in nursery school and lower schools, in high school or college, in hospital organization, in treatment agencies and social agencies of all kinds, in criminal courts, or in the military services. In every role the functions of the clinical psychologist and his relation to his colleagues must be defined clearly both at job levels and at top levels, where curricula and training facilities are arranged, where budgets are planned, and where prestige, rank, income and authority are determined. If his role in therapy is left unsettled, then no agreement can be reached on any of these issues, much less on the nature of the curriculum for training in clinical psychology. Nor can we avoid facing frankly the implications for private psychiatric practice.

IV. ORGANIZATIONAL PROBLEMS

A full consideration of the problem raises many special issues:

(1) Under the law, precisely what psychotherapeutic activities constitute the practice of medicine in each of the 48 states, under their 48 medical practices acts, and as defined by whatever relevant court decisions may have been handed down?

(2) How can the economic rivalry between medical and non-medical therapists be eliminated? What types of effective group or coordinated practice could be legally established which might eliminate such rivalries?

(3) How can scientific jealousies between the various psychological disciplines best be resolved? by coordinating training in all of them under one head? or by maintaining the present high degree of competitive rivalry and specialization within the psychological and psychiatric fields?

(4) If there is to be a closer integration of training in these disciplines, how can necessary training facilities be created and teachers recruited, and under what leadership?

In all these matters, biases which are both conscious and unconscious make objective thinking difficult. No one can claim to have all of the answers to all of the problems; and it would be well to hold a series of informal conferences on these problems in the near future. At this stage, this might best be an unofficial group of representatives from all interested disciplines. Later, it might be well to hold a more official conference representing medical psychiatry, clinical psychology, medical schools, teaching hospitals, educational institutions in general, community welfare agencies, industrial counselling, vocational guidance, and group health plans.

In the meantime, if only to launch such a discussion, I will set down my own convictions as they stand at present. I cannot claim that I will never change these convictions, because I have already changed very drastically. Twenty years ago I felt that no one should exercise any psychotherapeutic function who did not hold a medical degree. My present position is almost at the opposite pole; and together with my reasons can be summarized approximately as follows:

A. General Premise

(1) There are obvious dangers in the use of psychotherapeutic procedures by those who have not had a medical training.

(2) At least equally great are the dangers from the practice of psychotherapy by physicians who have had no adequate training in psychotherapy.

(3) The dangers under number 2 are not only as great as the dangers under number 1, but are more difficult to limit and control legally.

B. Legal Safeguards

(1) Under existing laws any licensed physician is allowed to do anything within the field of medicine and surgery. It would be difficult if not impossible to enact laws requiring that a physician who has had no training in psychiatry could practice psychotherapy only after further special training, and/or only under the guidance of a trained psychiatrist.

(2) On the other hand, it is relatively easy to control the dangers incident to the practice of psychotherapy by non-medical therapists, by specifying legally the conditions under which they can practice, so as to protect patients against the possibility that an organic illness might be overlooked. Thus it would be possible to enact a law (a) specifying the minimal curriculum and minimal clinical experience required of the clinical psychologist; (b) requiring that all patients be reviewed by qualified physicians both before entering treatment and periodically throughout the course of treatments; or (c) requiring actual affiliation of the clinical psychologist with one or more medical psychiatrists with whom he could work.

(3) The present situation, in which the clinical psychologist functions actually as a psychotherapist, but illegally and therefore without statutory restrictions, is indefensible and dangerous. Out of fear lest they be apprehended for violating the law some psychologists work quite apart from physicians. Others, in an effort to avoid mistakes, consult a physician every time a patient has a minor twinge of pain, thus playing into the hypochondriacal anxieties of their patients. All such sources of error can be controlled if the clinical psychologist is properly trained in a legally required basic medical curriculum, and if his situation is given legal status, with legally required supervision.

C. The Need

(1) Unless we train many thousands of clinical psychologists in this way, we will never have enough trained individuals to make psychotherapy available in industry, in homes, in nursery schools, in elementary and grammar schools, in colleges, in children's courts, in prisons and reformatories, in community agencies, and in clinics and hospitals where psychotherapy is urgently needed and where it is now completely unavailable. If we continue to restrict the practice of psychotherapy to medically trained psychiatrists and still pretend that these needs can ever be met, then we are deliberately deceiving ourselves.

(2) Such a program is more, however, than a matter of practical expediency. Individuals who come into the field of clinical therapy from diverse disciplines,

(such as education, psychology, psychiatric social work, cultural anthropology, and mathematics) have a contribution to make which can never come from the medical disciplines alone. We can no longer afford to dispense with these contributions.

(3) If educators are ever to learn the role of emotional and neurotic disturbances in the educational process, then training in expert psychotherapy (both analytical and non-analytical) is essential for the improvement of the field of education.

D. Curriculum

I will not presume to outline a complete curriculum in detail, but will illustrate possible future developments by suggesting the range of studies that might well be included.

The training of the clinical psychologist would begin in his undergraduate years, and the first phase would include the Masters Degree (cf. Brotemarkle et al.[2]). Only then would he become eligible for the more clinical aspects of training in a medical school. This division would not split his education into two unrelated parts, any more than occurs in correlating university and medical school training in physiology, biology, chemistry, or physics. Nor is there any necessary danger of overmedicalizing the field of clinical psychology and of lessening its experimental and research functions, any more than this has occurred in physiology.

The second or medical phase of his training would parallel the regular medical curriculum, in having a preclinical and a clinical stage. The preclinical phase would include (a) general physiology and neurophysiology, with special emphasis on the methodology of critical experimentation and of statistical evaluation of theories and of results; (b) general gross anatomy, taught largely by means of all modern visual aids. It will be noted that histology, pathology, biochemistry, bacteriology, pharmacology, clinical microscopy and physical diagnosis are omitted from the usual preclinical studies.

The clinical phase of the training would call for a new kind of clinical clerkship, designed to familiarize the student with the protean phenomena of disease, and with the wide range of human responses both to physical and to psychiatric illness. To secure this experience, the student of clinical psychology would work in a capacity which would stand somewhere between an intern, a clinical clerk, a nurse's aid and an attendant on medical and surgical wards, in outpatient clinics, and, finally, in psychiatric wards and outpatient clinics.[3, 4] Here, he could gain experience by taking medical and psychiatric histories under supervision, and by applying batteries of psychodiagnostic tests to medical and surgical patients as well as to psychiatric patients, all the while living in daily contact with the phenomena of illness, suffering, treatments and death. In this way, the student would become sensitive to the wide range of human reactions to disease. In itself this would give him both emotional and intellectual clarity in dealing with patients, thus safeguarding his patients against many errors. Omitted from such a paramedical curriculum would be all issues of differential

diagnosis and treatment of organic diseases, and all techniques of physical examination and of laboratory diagnosis. The goal would be to understand the pathological physiology of organic disease, rather than its differential diagnosis or therapy. Similarly, in pediatrics the emphasis would be on normal and pathological development, physical, intellectual and emotional, rather than on the specific diseases of infancy and childhood.

Finally, on this foundation would come a supervised training in psychotherapy. For the advanced students the final component of this would be training in psychoanalytic psychiatry, for the psychoanalytic treatment both of children and of adults.[5]

After a B.A. or M.A., this whole curriculum would take from four to six years. The basic training will take from one to two years; and the training in psychotherapeutic techniques (analytic and nonanalytic) from three to four years more. This should be compared with the minimal 10 to 12 years after the B.A. degree which it takes to turn out a medically trained psychotherapist.

It is of interest to note that in 1930, the late Frankwood Williams briefly suggested the same solution to this problem.[6] He wrote (pp. 25-27):

"The medical training of the psychiatrist includes much that is of no value to him in dealing with the problems that will come before him for study. Some of this training has about as much relation to these problems as algebra has to the keeping of one's bank accounts. At the same time, much is left out of his course of study that is absolutely essential to him in understanding his professional problems. . . . .

"The same is true of the training of the psychologist. In the process of obtaining a Ph.D. degree in psychology, valuable time is spent upon subjects that will have no application to the work to be undertaken, while at the same time much is omitted that is essential to the workers' equipment. . . . .

"A course of training must be designed that will be specifically adapted to work in the field of mental hygiene, behavior problems, extra-mural psychiatry, or whatever this field is to be called. . . . .

"The training of such a worker does not, of course, mean ceasing to train psychiatrists and psychologists along present lines. With any individual, the direction he would take would be a matter of choice. If he desired to become a 'psychiatrist,' or 'psychologist,' as we know them today, he would follow such a course. But if he chose to work in the field of child guidance or mental hygiene, behavior problems, extramural psychiatry, he would choose the course designed specifically for this field. . . . .

"The training of the psychiatric social worker is an excellent example of what may be accomplished in designing training to meet the specifically professional need. This training did not just grow up hodge podge. It was carefully and thoughtfully planned, and those who planned it kept in mind the precise work she would be called upon to do. The resultant ability to do the things expected of her has exceeded expectations. . . . ."

What Frankwood Williams had in mind clearly anticipates the proposal put forward here. We are particularly struck by the analogy of the training of psychiatric social workers to which he refers; and if we seek a further precedent for this proposal, we might also include the paramedical curriculum which was built up for the training of nurses in the middle of the last century. At that time, this step seemed even more revolutionary than the suggestion which is put forward here.

V. Conclusions

It is easier to define a goal than to find the path to it; and it would be naive to overlook the difficulties of such a program, even if general agreement could be reached as to the desirability of this general objective.

(1) In the first place, we do not have enough competent teachers of psychiatry to train other psychiatrists in psychotherapy. Where, then, can we find teachers with the ability and the time to train clinical psychologists? This will require generous subsidies from private foundations and from the government over a five to ten year period.[2]

(2) Ultimately, among the clinical psychologists who have been trained in such a curriculum there would be teachers to lessen the load on psychiatrists. At first, however, the major teaching burden in the specific therapeutic techniques would have to be carried by psychiatrists, and largely by analysts.

(3) All competent experts in this field are concentrated in a few large urban centers. Consequently, at the outset any such program could be undertaken only by medical schools which are located in these centers, and which could draw on the experienced practitioners of psychotherapy in their vicinity to form a special faculty for the curriculum for the Doctorate in Medical Psychology, and particularly for supervision of training in therapeutic techniques.

(4) At first such an experiment could be undertaken only in a very few medical schools, i. e., those which approach psychiatry with a modern dynamic point of view, which have well organized and well staffed departments of psychiatry, and which are located in large urban centers where there are many psychiatrists. In the course of time, however, such pilot demonstrations of what could be done would lead to similar developments in other medical schools throughout the country.

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Biophysics in Medical Education*

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The application of physics to medical practice and research has increased greatly in recent years. While the physical approach to medicine may still lag behind that of the chemical, the value of newer physical technics and instrumentation is strongly felt in all fields of medical activity. Such advances, made chiefly by the physicist and electronics expert, are, however, not readily available to the average medical man because of lack of sufficient or appropriate training in physical science.

Although it is not expected that the physician or medical investigator be a competent physicist, it is apparent that the complexities of modern medical practice and research would be eased by better grounding in physics. In fact, the need for improving instruction in physics for students of medicine has been emphasized repeatedly by such groups as the Association of American Medical Colleges, the American Physical Society and the American Association of Physics Teachers. The Baruch Committee on Physical Medicine[1] has also made specific recommendations for promoting more effective teaching of biophysics in medical schools.

Some years ago, Alan Gregg,[2] Director of the Medical Sciences, Rockefeller Foundation, stated that a significant development in American medicine would be the recognition of biophysics on a basis similar to that of biochemistry. That biophysics is coming of age and must take its place with biochemistry and physiology in medical teaching and research, both at the preclinical and clinical levels, was recently expressed by Schmitt.[3]

To determine the emphasis now being placed on physics in the training of medical students of this country, a questionnaire was submitted to the dean and the chairman of the department of physiology of each of the sixty-eight four year medical schools. A statement accompanying this questionnaire read as follows:

"It is obvious that physics is now playing an increasingly significant role in medicine. Some schools already have taken steps to improve instruction in medical physics; others are making plans to do so. We are interested in knowing what is being done, if anything, at your school in the way of emphasizing the application of physics to medicine, and what your opinions are relative to the proposal that instruction in medical physics be given more consideration in the medical school curriculum. Would you, therefore, please fill out this questionnaire and return in the envelope provided."

The questions posed were:

1. Do you feel that the application of physics to medicine receives sufficient emphasis in medical schools?

* Read before the American Physiological Society 56th Annual Meeting, May 19, 1947.

2. Does it receive sufficient emphasis in your school?
3. Are attempts being made now to stress the application of physics in your school?
4. If such attempts are being made, what subjects are given special consideration?
5. Do you plan to improve instruction in medical physics in your school?
6. If you feel that further improvement in the teaching of medical physics is desired, should such instruction be the responsibility of the Department of Physiology, the several preclinical and clinical departments concerned, or a special department (Biophysics)?
7. Do you believe that biophysics will ever occupy a position in the medical curriculum somewhat similar to that of biochemistry?
8. Do you have any suggestions or comments to offer?

Replies were obtained from fifty deans and fifty-eight professors of physiology, representing returns of 75 and 85 per cent, respectively. An analysis of the replies follows:

QUESTIONS		RETURNS			
		Yes	No	Indefinite	Omitted
		%	%	%	%
1. Do you feel that the application of physics to medicine receives sufficient emphasis in medical schools?	Deans	12.0	68.0	8.0	12.0
	Profs.	12.1	75.8	6.9	5.2
2. Does it receive sufficient emphasis in your school?	Deans	26.0	60.0	4.0	10.0
	Profs.	22.4	65.6	3.4	8.6
3. Are attempts being made now to stress the application of physics in your school?	Deans	60.0	26.0	2.0	12.0
	Profs.	62.1	24.1	5.2	8.6
5. Do you plan to improve the instruction in medical physics in your school?	Deans	72.0	12.0	2.0	14.0
	Profs.	58.6	13.8	5.2	22.4
7. Do you believe that biophysics will ever occupy a position in the medical curriculum somewhat similar to that of biochemistry?	Deans	56.0	26.0	8.0	10.0
	Profs.	43.1	34.5	12.1	10.3

For Question 4 (If attempts are being made to improve medical physics, what subjects are given special consideration), the breakdown was similar for the two groups. Arranged according to frequency of listing, the subjects were:

DEANS	PROFESSORS
1. Subjects pertaining to general physiology	1. Radioactivity (radiology, nuclear physics, isotopes)
2. Radioactivity (radiology, nuclear physics, isotopes)	2. Those pertaining to general physiology
3. Electrophysiology (neurophysiology, electrocardiography, electroencephalography)	3. Electrophysiology (neurophysiology, electrocardiography)
4. Physical medicine	4. Biological measurements
5. Optics	5. Optics
6. Electronics—cathode rays	6. Physical medicine
7. Basic physics—review and applications	7. Hemodynamics
8. Biological measurements	8. Basic physics—review and applications
9. Energy metabolism	9. Energy metabolism
10. Aviation medicine	10. Body mechanics

Question 6 (If you feel that further improvement in the teaching of medical physics is desired, should such instruction be the responsibility of the Department of Physiology, the several preclinical and clinical departments concerned, or a special department such as Biophysics?) was answered as follows:

	Deans (47) %	Professors (56) %
a. Physiology	23.4	42.8
b. Preclinical and clinical departments	23.4	26.8
c. Special department	34.0	17.9
d. Biophysics in physiology	17.0	10.7
e. Physical medicine	2.2	1.8

As would be expected, the comments and suggestions offered in response to question 8 were widely divergent. Some of these—samples of various views expressed—are incorporated. These are:

1. I would expect the next decade to show as striking a development in biophysics as has occurred in biochemistry since World War I.—Dr. A. B. Hertzman, St. Louis University School of Medicine.

2. Actually, today physics is more widely and accurately applied clinically than any other science diagnostically, and is, of course, extensively applied in treatment. A Department of Biophysics was established here in 1939 and a Department of Clinical Physics has been under consideration for some years.—Dr. C. C. Guthrie, University of Pittsburgh School of Medicine.

3. We plan a department of physical medicine to embrace such subjects as radiology, physical therapy, and the more fundamental subjects of biophysics.—Dr. H. C. Lawson, University of Louisville School of Medicine.

4. A certain amount of Biophysics must, we feel, be taught in Physiology under the present existing system of premedical education. It is my feeling that a separate course in that subject should be given, but not necessarily by a separate department. It might well be given by a Physiologist trained in that field.—Dr. J. Raymond Johnson, Long Island College of Medicine.

5. Biophysics should be initiated as a subdepartment of Physiology, with the intention of its becoming an independent unit as its usefulness and applicability increase.—Dr. Otis M. Cope, New York Medical College.

6. Instruction in biophysics should be given at several levels, but chiefly by the Department of Physiology. Additional time would be required. It could only be provided by cutting other courses like anatomy.—Dr. Emil Bozler, Ohio State University College of Medicine (for Dr. Hartman).

7. Biophysics is being developed here in several of the preclinical and clinical departments for research. Teaching is largely confined to the department of physiology.—Dr. Howard Curtis, Columbia University College of Physicians and Surgeons.

8. Biophysics, biochemistry and physiology should be organized into one well integrated course.—Dr. J. F. Fulton, Yale University School of Medicine.

9. It is proposed to expand the present department of biochemistry into a department of physical sciences with the responsibility of developing a coordinated curriculum of physics and chemistry in relation to the medical sciences. With this central department engaged in instruction in basic principles and research in new developments, the instruction and use of established techniques may remain in the hands of the departments interested, e. g., radiology, cardiology, physiology, etc.—Dr. R. Keith Cannan, Professor of Chemistry, New York College of Medicine.

10. I personally would prefer to see Biochemistry and Physiology combined, or if not, a smaller course in Biochemistry and an equally small course in Biophysics, with Physiology given afterward and synthesizing the two (with added material, of course). Medical students have not had enough previous training in Physics before coming to Physiology.—Dr. E. C. Albritton, George Washington University.

11. We are at present studying the advisability of creating a separate department of biophysics. It appears to us that the work in this field should be the responsibility of one department head though it cuts across the activities and interests of many departments, including especially biochemistry, physiology and medicine.—Dean Stockton Kimball, University of Buffalo School of Medicine.

12. A Department of Biophysics is under serious consideration. If it is established, emphasis will be placed on research in biophysics. Instruction in biophysics will be on a postgraduate level. The presentation of the subject to medical students will have to wait upon further progress in the field.—Dr. Philip Bard, Johns Hopkins Medical School.

13. We have an Institute of Radiobiology and Biophysics, and it is hoped this will indirectly influence medical teaching. Eventually a department of Biophysics may be organized and might participate in medical teaching.—Dr. F. J. Mullin, University of Chicago.

14. A Department of Physical Sciences is projected. It will incorporate sub-departments of Chemistry and of Physics and will occupy the position in the curriculum now taken by Biochemistry. It will be responsible for teaching and research in the basic principles of biochemistry and biophysics and in the design of physical instruments. Training in the application of these instruments to particular physiological and medical problems will remain with the departments interested in these applied fields.—Dean Currier McEwen, New York University College of Medicine.

15. Medical Physics is a very live subject here, but it has not yet come to occupy a coordinate place with Biochemistry, though I see no reason why it should not be so.—Dr. J. M. Olmsted, University of California Medical School.

16. I doubt that Biophysics will be separated from Physiology in our time in the same way that biochemistry is. We have a professor of Biophysics—so a certain separation has occurred, but his functions are more limited than those of the biochemist.—Dr. M. B. Visscher, University of Minnesota Medical School.

17. Before any training in Biophysics in the medical school could accomplish very much I believe that something must be done to convince our premedical students of the importance of an understanding of the basic principles of elementary physics.—Dr. Robert W. Lackey, Southwestern Medical Foundation.

18. I do not believe that much can be done by individual schools. Medical teaching needs reorganization with a view to getting students better prepared in Physics and with time allotted to the development of this subject in the medical course.—Dr. H. C. Bazett, University of Pennsylvania School of Medicine.

19. The average student here, and I suspect in other medical schools as well, begins his work with an inadequate preparation in physics. We can hardly expect the college course to prepare the student completely for such topics as hemodynamics or bioelectric phenomena, but in these fields we have to spend more time reviewing fundamental physics than should be necessary.—Dr. T. E. Boyd, Loyola University School of Medicine.

20. The premedical physics course should be designed for medicine, its principles should be carried through the clinical years. The third premedical year is desirable for medical physics.—Dean Francis Scott Smyth, University of California Medical School.

21. I do not favor a special department of biophysics. If there is to be additional emphasis placed on physics in medical school then I believe it could best be done through the Department of Physiology by a member of the department particularly interested and specially trained in this field, but not necessarily confining his activities to biophysics. It would seem to me such a man would also be an asset in research.—Dean W. H. Moursund, Baylor University College of Medicine.

22. In my opinion, physiology deals with the application of physics and chemistry to biology. Biochemistry in its development as a separate division or department has taken a great deal of chemistry away from physiology. What will be left for physiology if biophysics develops as a separate department? I am aware of the arguments for a separate department of biophysics but still think biophysics can develop as a division of physiology.—Dean Joseph C. Hinsey, Cornell University Medical College.

23. If biophysics should become as important as biochemistry, physiology will have to expand in the direction of clinical investigation as both fields of basic investigation would be preempted by biochemistry and biophysics.—Dr. Harold Green, Wake Forest College School of Medicine.

24. It is my feeling that a good department of biophysics would take over so much of what is now physiology that the rest of it could easily be passed along to biochemistry or anatomy. I see no need therefore for another teaching department nor any time for the overburdened student to spend in it.—Dr. W. O. Fenn, University of Rochester School of Medicine.

25. The trend of instruction in medical schools today is toward clinical instruction as early as possible in the curriculum. There is no room, therefore, for another preclinical department. It may, in fact, become necessary in the future to put all scientific preclinical subjects, except pathology, in the college.—Dr. G. Bachmann, Emory University School of Medicine.

26. Concentrate on raising the entrance requirements to medical schools to include as much emphasis on premedical physical training as we now have of premedical chemistry.—Dr. Robert W. Ramsey, Medical College of Virginia.

DISCUSSION

In addition, the views of two other well known medical educators, whose opinions were not solicited in this survey, are pertinent. One is that of Lovatt Evans, Professor of Physiology, University College, London,[4] who, states:

"It now seems that, just as physiology budded off from anatomy and then itself threw off, as an offshoot, the subject of biochemistry, so now it is preparing to develop another new branch called biophysics. Moreover, the fear has been expressed that, what with the handing over to specialists, each maintaining with no little heat his various opinions, of such branches as histology, biochemistry, general physiology, clinical science, nutrition, experimental pathology, pharmacology, endocrinology, and so forth, any further branching will imperil the parent trunk. My view is that this fear represents a parochial view and that the ultimate parent trunk is knowledge. Perhaps some hard pruning of old wood might encourage still more vigorous new growth, especially if combined with judicious disbudding. Though biophysics is now an active growing-point, it is too early to say whether it will earn for itself a separate place as a subject for undergraduate study. When it has produced such fruit as biochemistry has done, we shall know that it has earned such a place. In the meantime it should be nourished and shielded from the east wind; the results of its research work will be valuable in any case. . . . ."

The other view is that of Alan Gregg, to whom we referred earlier; Gregg writes;

"Of course a much more inclusive and significant development, in which physical therapy would be but a small part, would be the recognition of biophysics on a basis similar to that of biochemistry. True, it would belong close to physiology and at first it would derive from physiology as did biochemistry. Indeed at the present time the application of methods of electrical stimulation, record and measurement dominates the research interests of so many American physiologists that biophysics removed from physiology would leave something of a vacuole. . . . . I argue here for the explicit acknowledgment of insidious reality: physics is applied to medicine, physics is required for entrance to medical school, and yet deliberate recognition or energetic development of the potentialities of biophysics is left as the responsibility of no one in particular, leading a grant-in-aid existence until its value as a companion piece of biochemistry is finally admitted."

SUMMARY

There is a predominant feeling among medical educators that greater emphasis should be given to the teaching of biophysics. Since the curriculum is full, the proposal does not necessarily demand at this time the creation of a new department or a new division; nevertheless, certain schools have or are planning to have a special department for teaching and research in this field. Indeed, the present survey indicates that medical schools, in general, intend to weave into an already tightly fabricated curriculum a heavier design of this rapidly expanding subject.

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An Experience With a Laboratory Project Program in the Teaching of Pharmacology*

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As the biochemical point of view has become progressively more evident in pharmacological thought, older techniques of laboratory teaching have revealed themselves as inadequate to the task of correlating student work in the laboratory with lecture material. Those who designed "traditional" laboratory exercises in pharmacology were sharply limited in their choice of techniques. Consequently, many such experiments involve the administration of drugs to animals followed by visual observation of the animals or by studying changes in those parameters which are recordable by means of the kymograph. It has been found necessary so to limit the scope of laboratory exercises largely because of limitations of available teaching time and funds.

At the outset it is pointed out that no criticism is intended of those teachers who emphasize visual inspection as the basic technique of laboratory instruction. However, more quantitative methods of observation can be used to augment visual inspection and the student's insight into basic mechanisms can be much enhanced thereby. Moreover, if one works with small groups of students it is possible to use techniques which would not be available to an entire class.

Jordan[1] and Booker[2] have described project laboratory teaching programs in histology and pharmacology, respectively. They present only the titles of their projects; no experimental designs are given and no results obtained by students are reported. It is clear from their papers, however, that a large percentage of their students recall the projects in which they participated as vivid experiences. With the enormous accumulation of new information in the medical sciences, and with the increasing complexity of the methodology of those sciences it is possible that very broad laboratory coverage of a subject like pharmacology may become so superficial as to be dry and sterile. This will certainly be the case if laboratory exercises are rigidly compressed into two or three hours of allotted time and designed to make use of inherited student equipment. It becomes pertinent to inquire, then, whether or not participation in one project, such as those described by Jordan and Booker, carries a greater intellectual impact than does the "cook book" performance of several routine class experiments. In addition, there are many drugs which do not lend them-

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selves readily to pharmacological study in a period of a few hours, but require from several days to several weeks for a manifestation of their effects.

If project experiments are to be tried most effectively, it would be very useful if the many individual teachers of preclinical sciences in the medical schools of the country who are experimenting with this type of laboratory teaching would describe their experiences with it in some detail and present not only procedural data but also results obtained by students and some estimate of student reaction to the program.

In collaboration with the Class of 1949 of the Syracuse University College of Medicine we have instituted a program of "chronic" experiments in connection with the laboratory course in pharmacology, a course which is taught at the end of the second year. During the twelve weeks' period of the course, pharmacology is assigned 240 out of a total of 420 instructional hours. However, the nature of certain assigned projects was such that some work was done during time that was not specifically designated for pharmacology teaching. About one-half of the laboratory time in the course was set aside for work on group projects.

The project subjects were selected quite arbitrarily by the staff. For the most part they reflect the interests of individual staff members and they involve techniques with which the teaching staff is familiar. In some cases, staff members secured a first hand experience with a particular drug during the course of supervising a project, so that the experiments were not without teaching value for the faculty.

The students worked in groups of four and subjects were assigned by lot. Each group was given a "basic" bibliography, but most students showed evidence of having read beyond the prescribed bibliography during the course of the project. Three individuals (two or them undergraduate Fellows) supervised two groups each, while the other seven groups were supervised by two other staff members jointly. Techniques, such as that for determining the oxygen consumption of the rat, the blood sugar, blood sulfonamide concentrations, and so forth, were worked out in advance by group supervisors.

The subjects of the projects were assigned in such a way that two groups of four worked in a related field and used either the same or similar methods. Thus, there was some economy effected in drugs and equipment required, and, in addition, when each pair of groups conducted its seminar, a general review of a single broad subject was presented to the class. Care was taken to assign problems whose implications were discussed in class lectures by staff members. The experiments were all based on observations which can be found in the published literature.

EXPERIMENTAL DESIGN AND RESULTS

1. *Effect of thiouracil on oxygen consumption of rats.*—Four weanling rats received thiouracil in their drinking water for 24 days and daily weights were

recorded. Four other rats were used as controls. On the twenty-fifth day oxygen consumption of all rats was measured by means of the Haldane open circuit technique. The animals were sacrificed, their thyroid glands weighed and sample thyroids of each group were sectioned for histological study.

Thiouracil treated rats showed a mean fall of 24 per cent in fasting oxygen consumption. Treated rats were uniformly stunted and their thyroid glands were markedly enlarged. Histological sections showed typical changes previously described.

2. *Effect of thyroxin on oxygen consumption of rats.*—Four adult rats (200 gm.) were injected with 0.3 mg. of thyroxin per 100 gm. of body weight per day for 3 days. After an overnight fast oxygen consumption of these rats and four untreated controls was measured. Records were kept of weight and food consumption.

Thyroxin treated animals showed a mean rise of 41 per cent in oxygen consumption. They ate more food than did the controls, but lost more weight during the 24 hour fast. They were obviously hyperkinetic when compared with the controls.

3. *Treatment of sulfasuxadine agranulocytosis with folic acid in the rat.*—Three weanling rats were fed a synthetic "folic-acid free" ration. Four others were given the same diet plus 1 per cent of sulfasuxadine. Complete blood counts were done on all animals after 21 days on the synthetic diets. On the twenty-second day the sulfasuxadine group began to receive 50 micrograms of crystalline folic acid daily (subcutaneously) for seven days, during which time sulfasuxadine was continued. On the twenty-eighth day complete blood counts were done on all animals. Results are given in Figure 1.

4. *Conjugation of sulfonamides.*—Conjugation of sulfanilamide was demonstrated in three anesthetized renal ligated rabbits by means of the Bratton and Marshall[8] method adapted for the Klett photoelectric colorimeter.

5. *Effect of mustard gas on the blood picture in rabbits.*—The lymphocytopenia produced by the administration of mustard gas was demonstrated in four rabbits. In some experiments an hourly time scale was used while in others, counts were done daily. A crude dose-response curve was constructed.

6. *Effect of mustard gas on experimental tumors in mice.*—Lymphosarcoma No. 6C3HED was transplanted to 30 C3H strain mice. Ten were given a single dose of mustard gas, 10 were given multiple doses and 10 were used as untreated controls. Regression and inhibition of tumor growth was observed in the treated groups and histological sections of the tumors were studied.

7. *Production of alloxan diabetes in the rat.*—Eight adult male rats were fasted for 48 hours. Four of them were given 200 mg./kg. of alloxan subcutaneously. Records were kept of urine glucose, body weight, urine volume, and occult blood in the urine. On the fifth day intraperitoneal glucose toler-

ance tests were performed on all animals (1 gm./kg. of glucose) using the Nelson[4] method and the Klett colorimeter. The results are shown in Figure 2.

8. *The effect of composition of the diet on glucose and insulin tolerance in the rat.*—Four adult rats were fed a high fat diet and four others were given a high carbohydrate diet for two weeks. At the end of that time intraperitoneal glucose tolerance curves (1 gm./kg. of glucose) revealed markedly "diabetic" types of curves in the fat fed animals. After a third week on the same diets 1.6 U. of insulin per kg. intraperitoneally produced a much more marked hypoglycemia in the carbohydrate-fed group than in the fat-fed group.

9. *Effect of dicumarol on prothrombin time in the rat.*—Twelve rats were maintained on a low vitamin K diet for one week. Prothrombin time was obtained on 12.5 per cent rat plasma by a modification of the method of Shapiro and others.[5] Marked prolongation of prothrombin time was observed in the plasma of four rats given 2.5 mg. of dicumarol but not in that of control animals given the low vitamin K diet alone. The inhibition of this effect was noted in the cases of other animals which received 25 mg. of menadione in addition to the dicumarol.

10. *Effect of carbon tetrachloride liver damage on prothrombin time in the rat.*—Eight rats were poisoned with 0.7 ml. per kilogram of carbon tetrachloride injected intraperitoneally. Some of the animals died before adequate observations could be made but in 3 there was a very marked prolongation of prothrombin time at 24 hrs. after injection. Prothrombin time had returned to normal by 24 hours. An unsuccessful attempt to demonstrate the ineffectiveness of vitamin K in this circumstance was made.

11. *Protection of rats against mercury poisoning with British Anti-Lewisite.*—Ten adult rats were injected with 7 mg./kg. of mercury bichloride intraperitoneally. Five of the animals were given 3 doses of BAL (2 cc. of 1 per cent solution per kg.) intramuscularly at hourly intervals. There were four deaths at 24 hours and one 11 day survival in the untreated group and four 11 day survivals and one 9 day survival in the treated group.

12. *Protection of rats against arsenic poisoning with British Anti-Lewisite.*—The experimental design was similar to that in Experiment 11. The dose of potassium arsenite was 18 mg./kg., intraperitoneally. The treated rats were given 0.5 ml./kg. of a 10 per cent solution of BAL in oil intramuscularly at the time of administration of the arsenite and 0.3 ml./kg. 90 minutes later. All five of the unprotected animals exhibited convulsions and died in less than three and one-half hours. All five of the treated animals survived for 14 days.

13. *Penicillin and streptomycin mouse protection tests.*—A streptomycin susceptible Klebsiella organism and a penicillin susceptible pneumococcus were tested on groups of 10 mice and produced 100 per cent mortality in 24 hours. Streptomycin afforded excellent protection against the Klebsiella and one injection of penicillin prevented death for 72 hours in the pneumococcus group.

DISCUSSION

Since each group of four students had an experience that was not shared by the rest of the class great emphasis was placed on the class presentations. After the experimental data had been secured, each group compiled a review of the pertinent literature, a description of the procedure carried out and the experimental results. These papers were presented to the other members of the class. That the audience was interested and attentive may have been due, in part, to an announcement to the effect that certain final examination questions were to be selected from the material presented. The work was divided so that each student was limited to about eight minutes of speaking time. Students were encouraged to project illustrative material on a screen by means of an epidiascope. Instructors suggested graphic techniques to some individuals as an aid in presenting data, but many designed their own charts most competently.

Much stress was laid on the fact that the methods involved in the execution of these exercises are usually associated with one or more of the other preclinical medical courses. Those students who treated animals with a drug like thiouracil or alloxan and then examined the tissues of those animals histologically carried away what we considered to be an important lesson. The same can be said of other groups of students who used bacteriological, chemical and physiological techniques, as well as those whose approach was hematological. It was hoped that these projects would afford the student an opportunity to prove to himself that the customary division of the preclinical courses into anatomy, physiology, biochemistry, pathology, bacteriology, etc., is both artificial and arbitrary, for these traditional disciplines now borrow so freely from one another that they have nearly lost their individual identities. In a sense, the students who performed these exercises used laboratory methods exactly as they are used by the clinician, who does not hesitate to add to his armamentarium any laboratory tool he thinks will help his understanding of his patient, no matter what the workers who made it available to him call themselves. This feature of project teaching has been pointed out by Jordan.[1]

An evaluation of student reaction to such a program as this cannot be made properly by the teachers who supervised it. For it is well known that medical students are not likely to make overt adverse criticisms of their teachers particularly if they suspect that those teachers are especially interested in a program like the one described. However, it is possible to say that the written and verbal reports of this material were very well done, for the most part, and there was evident in those reports a certain pride of authorship that did not appear in many of the "routine" laboratory notebooks submitted. Moreover, many of the students who participated in this experiment told students in other classes about their projects with considerable enthusiasm, a fact which indicates more than casual interest. While there were without doubt certain individuals who could not conceal their boredom and lack of interest, we believe this group constituted a small minority of the class.

The authors are grateful to Mrs. Marion L. H. Freeman, Mr. William Murray and Mr. William Turman for their valuable help in supervising these experiments.

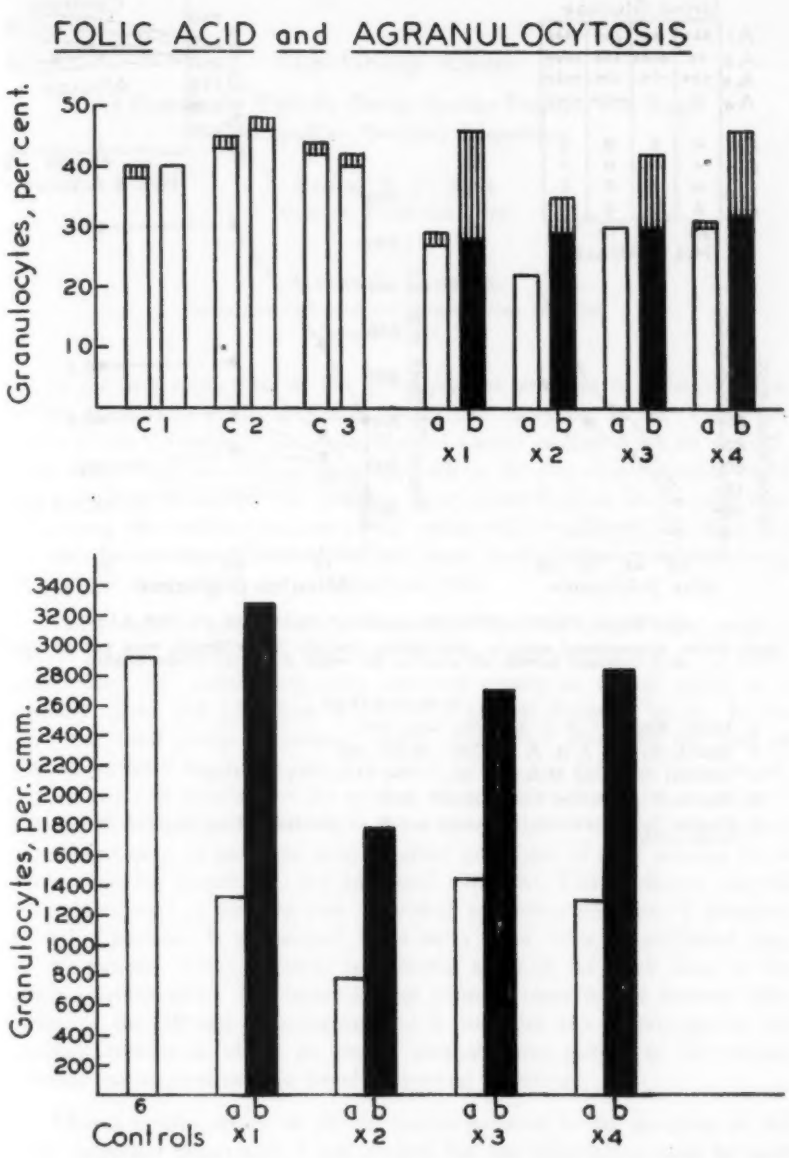

FIGURE 1. TREATMENT OF SULFASUXADINE AGRANULOCYTOSIS WITH FOLIC ACID IN THE RAT.

Animals labelled "C" on "Folic-acid free" ration; those labelled x on the same ration plus sulfasuxadine. Count "a" was done after 21 days on the synthetic ration; count "b" after 7 days' treatment with crystalline folic acid. Lined areas in upper graph signify immature forms.

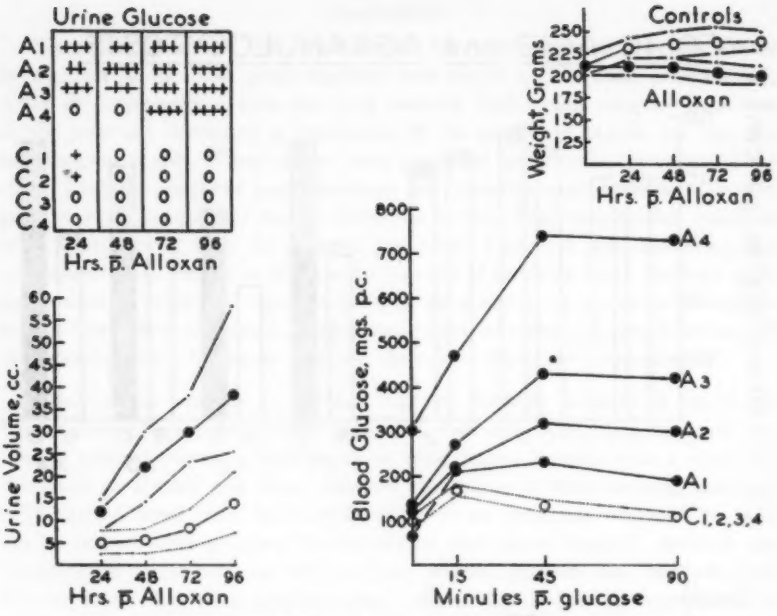

FIGURE 2. PRODUCTION OF ALLOXAN DIABETES IN THE RAT.

Solid circles, alloxan-treated animals. Open circles, controls. The arithmetic mean and the range of 4 individual animals are given in the weight and urine volume graphs.

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The Group Clinic

An Experiment With the Group Practice Principle in a Large Metropolitan Teaching Dispensary

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As the first application of the group practice principle to a large metropolitan dispensary, a Group Clinic commenced operation in the Vanderbilt Clinic of the Columbia-Presbyterian Medical Center in New York on April 1, 1946. This transition represents one approach to the present nation-wide trend for improving the care of low economic group patients, while at the same time stimulating the teaching program of the senior medical students. As this clinic has been an experimental unit in this field, some detailed observations concerning its first year of operation are justified at this time.

The problem of patient care in Vanderbilt Clinic has always been complex, but, in general, patients have tended to fall into three main groups: (1) emergency cases; (2) patients requiring treatment usually of a local nature in a specialty clinic; and (3) those in need of a general diagnostic study. In the past, this third group of patients, which represented about 40 per cent of patients accepted for care in the Vanderbilt Clinic, was referred from the admitting clinic by members of the medical house staff to that particular departmental clinic appropriate for the presenting complaints. Under that system it was necessary, as problems arose in other specialties, to send patients on to other clinics for consultation and additional treatment. This machinery allowed each department to have its own individual outpatient unit, but it produced several objections. It necessitated many extra clinic visits on additional days by the patients, which, in turn, reduplicated much of the work done by the clinic administration. It prevented close personal consultations between physicians in the different departments. And it precluded any opportunity for the medical students to obtain an overall comprehensive picture of the various patients and to participate in interdepartmental discussions.

After a careful review of all the factors involved in the operation of this large outpatient department, it was decided that this third group could be cared for most efficiently in a Group Clinic staffed by doctors from all the clinical departments of the Medical Center working in close association. Inasmuch as in this institution the various specialties have been more completely divided into separate departments than is true generally throughout the country, it has been necessary to adjust many different interests to this change. The Surgical

Diagnostic and Medical Clinics were combined and consultants were assigned from the departments of dermatology, gynecology, neurology, ophthalmology, orthopedic surgery, otolaryngology, psychiatry, and urology.

The introduction of the Group Clinic has permitted a general diagnostic study to be given to all medical and surgical patients and to the more complicated cases which, in the past, would have been referred directly to one of the specialty clinics. Otherwise, the formerly accepted handling of the patients for admission to the clinic has not been changed. In addition, there has been no interference with the operation of the special study clinics which for many years have been operated in most departments.

The Clinic was set up to be and has functioned as both a diagnostic and treatment clinic, with the patients having several possible routes of disposition. Some cases have been admitted to the hospital, others have been referred to either a departmental clinic or a special study clinic for further observation or specialized treatment, and still others have been observed and treated in the Group Clinic in the same manner as in the former Medical and Surgical Diagnostic Clinics. In addition, provision has been made for referral to the Group Clinic of patients originally seen in a specialty clinic for whom a general diagnostic study becomes necessary. It has been found expedient to include in this new framework a group of cases referred to Vanderbilt Clinic by family physicians for diagnostic workup only.

The size of the clinic, though limited by the number of available medical students, has been found more than adequate to handle the current demand for general diagnostic studies. The senior students, now on a twelve month schedule, have been made an integral part of the organization and are responsible for the initial examination of all the new cases. On an average, there have been seventeen students in the Clinic, each of whom at a maximum has been expected to handle two new cases five days a week. During the first year, 4,728 new cases were seen in the Clinic. This represents a monthly average of 394, with a top figure of 571 seen in May and a minimum of 251 in August. This represents a substantial increase over the number of patients who, in the past, received a complete diagnostic study in Vanderbilt Clinic.

In actual operation, the patients have been assigned to the Clinic on an appointment basis, and have had their initial history and physical examination taken by a medical student in the morning, at which time also certain basic routine laboratory tests have been performed. This has cleared the afternoons for concentrated teaching activities, with the new cases being reviewed in detail by the visiting physicians, old cases being seen on their follow up visits, and consultations being obtained in the various specialties as indicated. The large majority of the patients have been seen initially by the internists, who have acted in the role of a "family doctor," but in some of the more clearly surgical cases, the surgeons have handled the problem from the beginning. Overall responsibility, however, has not been extended beyond these two departments.

The Group Clinic has been staffed by representatives of every clinical department of the Medical Center except pediatrics. Because of the dominant role played by the internist, there has been approximately one such member of the department of medicine per student. The teaching schedule has been so arranged that each student has a different medical instructor each day of the week keeping these five physicians throughout his two month period in the Clinic. In this way, both the student and internist have been present together for follow up visits. In addition to the internists, the staff has included three surgeons, two neurologists and one consultant each from the departments of gynecology, otolaryngology and psychiatry. Representatives from the departments of dermatology, ophthalmology, orthopedic surgery and urology have not been actually in constant attendance within the Group Clinic area since the clinical material has not been adequate to keep one such specialist occupied throughout the afternoon session. Fortunately, Vanderbilt Clinic holds daily clinic sessions in each of these specialties at the same time as the Group Clinic and these clinics are large enough to have one visiting physician available each afternoon to be called as needed.

A careful analysis of the operating statistics of the Group Clinic reveals that, on the average, patients have required 2.4 clinic visits in order to complete their diagnostic study, and in the course of these visits they have been seen by physicians from three different clinical departments. Therefore, under this group method, each patient has seen 1.26 physicians per visit. Such figures unfortunately dilute the tremendous advantage of the group practice principle in certain patients presenting complex problems. The following figures indicate the percentage breakdown of consultations requested of each department:

	%		%
Surgery	28	Psychiatry	5
Neurology	23	Dermatology	4
Gynecology	15	Ophthalmology	4
Otolaryngology	13	Orthopedic Surgery	3
Urology	5		

Except for neurology, which figure is high, the distribution is typical of what our experience has been throughout the year. At the time these figures were compiled, some cases of the type now going directly to the Neurological Clinic were first being worked up in the Group Clinic.

With the commencement of the second year of the Clinic, the responsibilities of the Surgical Department have been increased and these consultants are now directly assigned students who, in the course of the morning have worked up cases selected for their surgical interests. This change will increase the amount of surgical teaching and will place the surgeons, like the internists, in the role of a "family doctor."

Being anxious not to increase further the already high cost of medical care, the admission charge for each visit to the Group Clinic was made identical to

that for any other department, regardless of the number of consultants seen. Therefore, patients under this group method have received more medical service at less cost. And since more new patients have been accommodated with no compensatory increase of facilities, the overall financial balance has remained unaltered. As in all the other departments of Vanderbilt Clinic, physicians have served without remuneration.

The administrative personnel required to operate the Group Clinic has numbered no more than previously required to cover the separate clinics.

After one year of operation as an experimental unit, the Group Clinic has been accepted as an integral part of Vanderbilt Clinic. It has supplanted the old Surgical Diagnostic and Medical Clinics, but has not otherwise altered the general outpatient organization. By uniting representatives from the various departments in one geographical unit, it has produced advantages for the administration, patients, students and doctors alike.

Although the detailed organization within this clinic has been complex, the administration of Vanderbilt Clinic as a whole has benefited by a very real curtailment in the detailed procedures inherent in sending patients to a number of different clinics. In addition, the ordering of nonessential and reduplicating laboratory work has been reduced.

The students have accepted enthusiastically the added stimulus which this change has given to their outpatient instruction. Their close association in the general workup of the cases has given them an integrated picture of the patients as a whole, an advantage which has been consistently reflected in the maturity of the summaries which they have been required to prepare on every case.

A larger number of people have been given a complete examination without the inconveniences entailed by return visits to multiple clinics. The pooling of expert opinion has expedited the recognition of disease and has provided the doctors for the first time with routine first hand contact and consultation with their colleagues in the other departments.

The British Medical Research Council

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In Great Britain, the promotion of medical research on an organized scale has been accepted as a State responsibility ever since the National Health Insurance Act of 1911. In 1913, a Medical Research Committee (the predecessor of the present Medical Research Council) was appointed to administer the moneys then provided for medical research from National Health Insurance funds. With the passage of the Act of 1919, which established the Ministry of Health, the responsibility for promoting State aided medical research was transferred to a special Ministerial Committee of the Privy Council.

Under this Committee, the Medical Research Council received its present title and constitution in 1920, and the funds for its work began to be provided directly from the Treasury in the form of a grant-in-aid approved annually by Parliament; the value of this grant for the Council's work is about one-half million pounds ($2 million) in the present year. Cooperation between the Medical Research Council and the Government organizations for industrial and agricultural research is facilitated by the fact that these parallel organizations are also directed by special Committees of the Privy Council, the Lord President of the Council being the Minister responsible to Parliament for the work of these three Government research bodies.

The program supported by the Medical Research Council is not concerned exclusively with studying the nature and causes of disease, and of devising improved methods of prevention, diagnosis and treatment; it deals also with the fundamental sciences of medicine, such as physiology and biochemistry, with problems of nutrition and of the maintenance of human well-being, mental as well as physical; and with the normal and abnormal physiological and psychological reactions of the human being to his work and environment. It may deal, indeed, with almost any question involving the "human factor."

The Council consists of twelve members—three lay and nine scientific—with a secretary and other administrative officers. The present secretary is Sir Edward Mellanby, whose own researches on rickets and other diseases are well known. Members of the Council retire in turn at regular intervals, but the aim is to ensure that its scientific membership always comprises a body of distinguished experts with first hand experience of research in clinical medicine and surgery and in the more important of the fundamental sciences on which these are based. To advise it on the promotion of research in special branches of medical science, the Council has the help of a large number of expert Committees which it has itself appointed from time to time. An example of these committees, which cover a very wide range of medical subjects, is the Colonial Medical Research Committee, appointed jointly by the Council and the Colonial

Office, to direct work on nutritional and other questions affecting the health and well-being of colonial peoples. In planning research on problems of industrial welfare and efficiency the Council has the assistance of the Industrial Health Research Board.

Britain's Medical Research Council thus enjoys a high degree of autonomy, being responsible only to its directing Committee of Ministers and to Parliament for the proper expenditure of its grant-in-aid. This relative independence of the Council illustrates an important principle, long accepted in Britain, that the detailed allocation of public money for scientific research is best entrusted to an expert body of scientists, with only a leavening of lay help. The Council naturally works in close association with the Ministry of Health and other administrative Government departments on matters of common interest, and indeed one of its major functions is to advise these departments on health problems within their sphere, undertaking such new investigations as may be necessary for the purpose.

The Council's central research establishment is the National Institute for Medical Research in London. The research program of this Institute is a very wide one, falling under the general headings of physiology, pathology, biochemistry, pharmacology and chemotherapy, endocrinology and physics in relation to medicine. Only laboratory work is done there, though much of this has a direct bearing on the prevention and cure of illness in man.

Obviously, in any organized program of medical research, prominence must be given to the study of clinical problems of diseases and injury as seen in patients—that is, to investigations in hospital wards and outpatient departments. To this end, the Council has for long maintained, wholly or in part, the special departments for clinical research in medicine at two London teaching hospitals, and at a hospital for nervous diseases. More recently, it has set up a number of further research establishments in London, including units for work on ear diseases and eye diseases, for research on the radiotherapy of cancer, and for the study of industrial illnesses and toxicology; units for research in human nutrition and in dental diseases have also been established in London.

Research on the treatment of burns, and on various problems of industrial injury and skin disease, is carried out in units maintained by the Council at Birmingham, and a special unit in South Wales is investigating the problem of occupational lung disease in coal miners. At Cambridge, the Council recently established a Research Unit in Applied Psychology, and a Department of Experimental Medicine. Other research units of the Council in London and elsewhere in Britain are concerned with fundamental and applied problems of chemotherapy, vitamins, microbiology and cell metabolism; with questions of blood grouping and the medical use of blood derivatives; with electromedical and biophysical problems; and with problems of industrial physiology. New problems demanding intensive study are constantly arising, and new units are being appointed to deal with them as workers and facilities become available.

At the National Institute for Medical Research, and at its other research establishments, the Council employs a whole time scientific staff, including many medical men and women. While the greater part of the funds at its disposal is thus devoted to the support of work within its immediate control, an important fraction is expended annually in the form of temporary grants made in aid of approved researches by independent investigators at Universities, hospitals and other institutions throughout Great Britain and on occasion overseas. Most of the results of the research work supported by the Council are reported by the investigators in papers in scientific journals, but the Council itself issues various reports and monographs, which are published and sold by His Majesty's Stationery Office.

In addition to its primary function of supporting research in medical science, the Council during the war period undertook a number of executive functions on behalf of the Ministry of Health. One of most far reaching significance was the establishment throughout England and Wales of an Emergency Public Health Laboratory Service, to augment the existing public health services in combatting epidemics of infectious disease. This arrangement proved so successful that it is being continued in peace time as the framework of an organization for carrying out nationwide research problems of public health and epidemiology.

It is too early yet to predict the full effect of the new National Health Service Act on the Council's work. The new Act empowers the Minister of Health to promote research (as indeed he has been able to do hitherto), but it is specified that this function of the Minister will be "without prejudice . . . to the duties imposed on the Committee of the Privy Council for Medical Research" under the Act of 1919. The new Act also gives statutory authority for the maintenance of the Public Health Laboratory Service. No doubt the cooperation between the Council and the Ministry of Health will continue to be very close and effective under the new arrangements, and there is reason to hope that the establishment of a coordinated hospital service throughout the country will provide improved facilities for clinical investigation, and for the collection of statistics on the frequency and course of different illnesses; it may well serve, also, to shorten the time interval between the acquisition of new knowledge by research, and its widespread practical application in medical treatment.

The accelerated tempo of medical discovery which began under the stress of war shows no signs of slackening, and a new research weapon of immense promise for elucidating the detailed function of living cells and tissues is provided by the tracer isotopes, developed as a by-product of those researches in nuclear physics which led in another direction to the atomic bomb. In this postwar world which has presented disappointments in so many fields of human activity, the prospects for medical research, at least, are full of hope.

Basic Medical Training in Britain

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It is true only in a limited sense that in Great Britain the training of a doctor is controlled by law. Nearly ninety years ago, an Act of Parliament, known as the Medical Act, 1858, was passed to ensure that the public of Britain could discriminate between the skilled and the unskilled doctor. Since that time, a register has been kept of those doctors who had undergone a satisfactory medical training as shown by their having passed examinations which sufficiently guaranteed, in the words of the Act, "The possession of the knowledge and skill requisite for the efficient practice of medicine, of surgery and of midwifery."

The body charged with maintaining these standards in Britain and of keeping the register of qualified practitioners is the General Medical Council. This Council appoints from time to time inspectors who attend the qualifying examinations and report on their sufficiency or otherwise as appropriate tests. There are in Great Britain and Ireland more than twenty medical schools. In order to secure a uniform minimum standard, the Council from time to time issues recommendations about what subjects should be studied, for how long, and in what sequence. But these are recommendations and not requirements. The Council has no right to impose an inflexible curriculum on the schools, nor does it seek to do so. Nevertheless, all schools and examining bodies take heed of the very carefully considered recommendations formulated by the Council.

These recommendations have recently been revised in the light of a report which was published in July, 1944, by a committee which was set up by various Government Departments to enquire into medical schools.

Before any student can be admitted to the study of medicine in Britain, he must have shown evidence of proficiency in general studies as attested by his having passed an examination equivalent to a university entrance examination. The number of students seeking to enter the medical profession is many times greater than those for whom places can be found in British schools. Thus, entrants have high academic and personal qualifications; indeed, the standards of entrance are as high as any in the world. Admission committees sift the applicants by various methods including a personal interview.

The medical course proper covers a period of six years so that, as a rule, a student enters at the age of 17 to 19, and, if there has been no break in his course, he qualifies between the ages of 23 and 25.

The first year of a medical course is usually taken at the medical school, though many bright students will have covered the syllabus and passed the examinations in first year subjects while still at school, for these subjects are the basic sciences of physics, chemistry and biology. Their importance has been

recognized increasingly in the training of a medical student. These sciences are the instruments whereby the functions of the body in health and disease are explored and unless the student has a firm groundwork in them, much of his later study is meaningless. But they are not taught with an undue vocational bias, for their main purpose is to inculcate the scientific method; they seek to indicate the value of observation and experiment, the uses of classification, the purpose of hypothesis and theory, and the significance of scientific law. Hence, this period is referred to as premedical, a term which emphasizes that it is of itself an educational discipline in preparation for the study and practice of medicine.

The first period of professional education proper is devoted to a study of normal man in all his aspects, his anatomy, his physiology and biochemistry and his psychology. To these ends the whole human body is dissected in detail, its normal development is studied, and the microscopical structure of its tissues are examined. Experimental physiology is carried out by the student, not only on laboratory animals but also on himself and his fellow students. At this stage training in the use of diagnostic instruments is provided in order that the student might familiarize himself with normal findings. X-rays are often used in the teaching of anatomy and here also the elements of genetics may be taught. At the end of this period of study, which is called preclinical, and which usually lasts eighteen months (including vacations), the student should have a firm groundwork in the normal and be adequately prepared for his study of the abnormal, that is disease.

Before, however, he enters the hospital wards as a student attached to a medical or surgical firm, it is customary to interpolate the three months' period of preparation for clinical work. This is called the transitional or introductory clinical period and is devoted to the study of the methods of clinical examination and of elementary pathology, bacteriology and pharmacology.

Then comes a period of clinical studies which last at least thirty-three months. In this the old British system of apprenticeship is translated into a modern training in which, however, the student assumes some responsibility for the patient. For a period of one year, equally divided between medicine and surgery, he is assigned a number of beds in the wards and he is responsible for recording the history of the patient and the results of his examinations. These he discusses with his teachers and learns by their example, as well as by their precept, how to manage a patient. He also attends the outpatient department. His instruction is designed to ensure familiarity with the commoner conditions; to recognize those which it will be within his competence to treat; to know what benefits specialized methods of diagnosis and treatment can confer, even though they are beyond his skill; and to form a basis on which he can build securely any later studies. In addition to general medicine and surgery, he is required to have instruction in acute infectious diseases, in tuberculosis, in venereal diseases and diseases of the skin, the ears, nose, throat and eye, in orthopaedic surgery, in dental disease, in dietetics, nursing and physical

medicine, in radiology and in anaesthetics. Where possible, a period of residence in hospital is prescribed. Throughout this clinical training, but more intensively whilst he is studying medicine and surgery in the wards, he is also having systematic lectures and laboratory instruction in pathology, bacteriology, pharmacology and therapeutics.

To midwifery and gynecology considerable attention is rightly devoted. The period of clinical instruction for these subjects lasts six months and of these at least two-thirds of the time must be devoted to midwifery and infant hygiene. Two months of the midwifery period must be spent in residence in a maternity hospital. Recently, diseases of children have become one of the major subjects of study and emphasis has been given to the need for the student to visit child welfare clinics, school medical clinics and child guidance clinics, so that he is familiar with what governmental agencies provide in these respects.

The General Medical Council has amplified their suggestions on the content of the courses in psychiatry and in social medicine. Hitherto, there has been a tendency to confine psychiatric instruction to the grosser mental disorders but with the wider recognition that "no disease is wholly physical and no disease wholly psychological" and that psychological disorders commonly express themselves through visceral disturbances, the outlook has broadened. In the general wards of a hospital there is ample opportunity for stressing the interrelation of the physical and psychological aspects of disease.

So also with social medicine. The old teaching of preventive medicine which consisted largely of discussing ventilation, sewage systems, purification of water supplies, and the like, is now regarded as the less important aspect of public health. Social medicine covers a wider field. It includes the effects on the individual of environment, heredity, occupation and other social influences, and the individual's reaction to them. In this instruction not only do the public health and social welfare services play a part but also the role of ancillary workers, such as almoners, health visitors, psychiatric and other social workers is learned. Usually during the latter part of his clinical study, the student is given systematic lectures in the major subjects and also in medical jurisprudence and the legal and ethical obligations of registered medical practitioners.

The professional examinations are held after each of the main periods of study—the premedical, the preclinical, and the clinical. These examinations may be divided into various parts, but no one is registered until he has passed all parts of his final examination. In the final examination clinical proficiency is the essential criterion. Judged by results there is by general consent no better practical training in medicine than that which our British schools offer.

A Method for Teaching the Emotional and Social Aspects of Preventive Medicine

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BACKGROUND

Preventive medicine is a broad concept which should permeate all fields of medical education and practice. As Smillie points out, preventive medicine "is not a new diagnostic tool, nor a new method of treatment. Rather it is the introduction of a point of view, which has as a primary consideration health instead of disease. It is more interested in the amelioration of factors that produce illness, than in illness itself. It considers man as a social being, as part of a family, and as one who is affected profoundly by his environment. It introduces the idea that health and well being may be influenced by certain favorable factors which tend to promote optimal living conditions, and, contrarywise, that disease may be produced by unfavorable environmental factors which are subject to abatement and relief."[1]

From the point of view of "man as a social being," preventive medicine incorporates the preventive aspects of psychiatry, or "preventive psychiatry." This, in itself, is a broad concept covering a variety of activities that are in line with the "idea" noted above. Specifically, these activities vary from attempts at conserving mental health, by promoting favorable environmental or social attitudes, to attempts at preventing mental illness through the early recognition and treatment of emotional disturbances and the factors that gave rise to them.

The basis for the concept of preventive psychiatry lies in an understanding of the needs of the individual and the role of interpersonal relationships in the attainment of these needs. Although psychiatry has contributed largely to this understanding, the application of psychiatric principles beyond the individual treatment situation has lagged because of the preoccupation of psychiatrists with therapeutic goals. The need for a more general application of the psychiatric approach has been stressed by Chisholm[2] and other psychiatrists, and there would now appear to be a definite trend in this direction. This has been fostered by an increasing interest by other branches of medicine in the social and emotional factors of illness. This interest stems from the changes that have occurred in medical practice, and Allen laid down the dictum that "no patient can be fully understood or effectively treated without appreciation of the environmental stresses affecting him and the reactions induced by them."[3]

In keeping with the trend, more attention has been directed toward psychiatric teaching in medical schools. Psychiatry has been given a larger share in the teaching curriculum and future practitioners should be better prepared to recognize and manage the emotional problems of their patients. The use of psychiatric social workers in the teaching program helped to bring to the attention of the student the importance of social and environmental factors. This phase of teaching was well described by Melly Simon.[4] In a narrow sense, this is prevention and we are now gathering evidence that emotional problems are being picked up earlier and handled better since the institution of this teaching.

However, it is generally agreed that the departmentalized type of teaching in medical schools tends to emphasize differences in approach to patients and thus tends to compartmentalize the student's thinking. Certainly, the amount of carryover of the psychiatric approach, as it was taught in that part of the curriculum devoted to psychiatry, was so disappointing that it has been felt necessary to reinforce this with the addition of psychiatrically trained personnel to the staffs of other departments. The need for better integration was obvious but difficult because of departmentalization.

Preventive medicine has assumed an important role in fulfilling the need for better correlation and integration of teaching in our medical schools. In describing the basis for teaching the effect of social and environmental factors in the preventive medicine course, Dublin says: "Ninety per cent of our graduates will enter the private practice of medicine. As practitioners they will be engaged in the close personal association which has been described as the doctor-patient relationship, that synapse through which the major share of the knowledge and skills of the physician must flow in providing medical care. Medical education of the past has shown us how we may prepare the student with the tools of the physical and biological sciences needed for proper practice. Medical education of the present has begun to take greater cognizance of the need for equipping our students with the knowledge and skills required to care for the patient, not only as an aggregate of organs and physicochemical processes but as a living functioning unit of a complex society."[5]

At Washington University School of Medicine, prior to 1945, the only formal consideration given to teaching the social and emotional factors of illness was during the third year clerkship in the Neuropsychiatric Clinic where students discussed their patients' problems with social workers. When a clerkship in preventive medicine and public health was established in 1945, one of its major objectives was providing the student with a greater opportunity for learning more of the interaction of social and environmental factors with the patient's illness. This was done by the case study method. Students selected patients known to them in previous clerkships and visited these patients in their homes. Selected cases were then discussed in a seminar under the leadership of an instructor in preventive medicine and attended by a medical social worker and various physicians selected by the instructor. This approach was found to be a valuable teaching device, and in 1946 a medical social worker was added to the staff of the Department of Preventive Medicine to supervise these activities.

In the fall of 1946, the Departments of Preventive Medicine and Neuropsychiatry, in conjunction with the Social Service Department, worked out a plan for an additional weekly seminar during the Preventive Medicine Clerkship. This was done in an effort to allow for more discussion of the role of social and emotional factors in illness and the physician's responsibility for the recognition of these in the plan for medical care. It was also hoped that the student would develop a better understanding of the role of the social worker and the function of social agencies.

METHOD

The group or class consisted of 10 or 12 senior students. Material for discussion was drawn from cases known to the Social Service Department of this medical center. Responsibility for selection of the cases rested with the medical social work instructor, with the benefit of consultation with the psychiatrist. The case material was essentially non-psychiatric and representative of problems encountered by the practicing physician. An effort was made to select those cases which demonstrated the importance of the role of the physician in the total program for the patient. Some of the cases illustrated excellent recognition and management of the various factors in the patient's total situation, others poor.

The procedure in conducting this seminar was that of having a medical social worker, who had worked with the patient, present a summary of her relationship with the patient. This, generally, included the reason for referral, the important features of the situation as they developed, and the way they were handled by various personnel and agencies. One of the medical students reviewed the medical data, and a second medical student, who had previously reviewed the records, initiated the discussion by correlating the two reports and commenting on the relationship between them. The psychiatrist assumed the responsibility for leadership of this seminar. Students were encouraged to express their ideas and feelings as much as possible, with the leader giving direction which was for the most part passive and utilized to focus the discussion and summarize conclusions. The medical social work instructor was present at each meeting to participate in the discussion when indicated and to act as consultant in matters of community resources and their use.

The following is an example of a case, with a summary of the discussion that was evoked.

A 16 year old, white male was admitted to the medical service with acute rheumatic carditis. He had had no serious illnesses in the past and came from a stable farming family. After entering the hospital, it was noted that although he appeared tense and anxious, he adopted an unrealistic denial type of attitude toward his illness which promised difficulties in the future. A psychiatrist was asked to see the boy and soon found that he was full of fears concerning his future. He was the youngest of three children. An only brother was killed within a year of the patient's illness, and a friend had come to this very same hospital and died shortly before his admission. He had been an outstanding athlete in school and had expected to follow the family pattern of farming when he graduated. The mother was overly anxious about the patient's condition and had communicated her concern to the boy. In the hospital he had heard nothing

of a reassuring nature when rounds were made in his ward, and the residents were too busy to spend much time with him.

After the patient had the opportunity to discuss his anxieties freely with the psychiatrist, and a resident found time to answer his questions about rheumatic fever, the patient's attitude changed. He took a great interest in the activities of the ward and made a good adjustment to the ward routine. Social Service was called in when it appeared that the patient would require a long period of hospital and convalescent care. At about this time the parents announced that they had reached the limit of their borrowing capacity and would have to remove the patient from the hospital. The social worker found that the patient was eligible for the services available under the Crippled Children's Program of his state, and this was immediately obtained. The mother was also seen during this time and much of her anxiety was allayed. The patient was then sent to a convalescent home where he had some difficulty in adjusting to this new situation. He was visited frequently by the worker and given the opportunity to ventilate his feelings. During this time, there was also some discussion about future plans and the patient began to adopt a more realistic attitude toward his future limitations.

When he was ready to leave the convalescent hospital, it was felt that he was not ready to return to his isolated home, and a boarding home was found for him through an agency. He returned to school, maintained his interest in sports by becoming manager of one of the teams, and developed definite plans for a career for which he was well suited and could achieve through the help of a Vocational Rehabilitation Program. He has been followed for a period of over a year in the medical clinic since leaving the hospital, and he has maintained this status. He looks back at his hospital experience as a "maturing" one and has excellent relationships with the physicians in the Clinic.

In the discussion, since the focus of attention was on prevention, the prognosis in such cases was discussed, with all the factors that could influence this; organic, psychosomatic, emotional, and environmental. Most of the students had come in contact with chronic "cardiac invalids" who were disabled far beyond the expectations of their physical lesions, and this particular patient became the focus of a discussion of how this status could be prevented. The admission procedures and medical management were discussed in terms of the early failure to recognize and do something about the patient's disturbed emotional state, the attitudes of the parents, and their financial limitations. The responsibility of the physician in attempting to understand the needs of this patient and the effect of environmental factors were brought out during the discussion by the students themselves. Ways of meeting these needs were discussed and here the psychiatrist and social workers made active contributions as they were called on to do so.

OBSERVATIONS

A. *The Psychiatrist.*—From the point of view of the psychiatrist, the discussion took on the form of group psychotherapy. In initial sessions the students expressed considerable resistance to the recognition of the needs of patients other

than strictly medical ones. They emphasized the organic pathology and minimized or rejected the emotional or social aspects. Their defensiveness appeared to be related to their insecurity in dealing with these factors. However, as they were encouraged to discuss their own feelings freely, they quickly began to loose their defensive attitudes and to accept a broader concept of the role of the physician. This was perhaps facilitated by the recommended reading of such books as Binger[6] and Peabody.[7] By the fourth session, in almost all of the groups the resistance had disappeared and the students then appeared to have no difficulty in recognizing the needs of the patient and how these should be met.

This approach really grew out of the very marked resistance encountered with the first group of students, whose attitudes revealed a lack of acceptance of the material of the discussion. In an endeavor to circumvent this resistance, the psychiatrist abandoned the usual class room procedure in which the instructor is actively directive in his approach, and adopted the procedure of group psychotherapy. This is not a new approach by psychiatrists in this situation, but apparently no attempt was made to standardize it as ordinary class room procedure until recently, when Cantor described this method and its background in great detail.[8] However, Cantor did not sufficiently emphasize the experience that is necessary to understand and handle the dynamics of the learning process with this kind of material. That there is a therapeutic aspect was demonstrated not only by fundamental changes in attitudes but also by the number of students who later indicated directly or indirectly that they "felt" differently about their relationship to patients.

B. *The Medical Social Work Instructor.*—The medical social work instructor, who is also a member of the Social Service Staff, observed changes in attitudes towards patients in the students who had taken this course. Evidence of this came not only in an increased number of referrals of the students' patients for social service, but also in better referrals and better working relationships between student and social worker. It was obvious that the students gained a better understanding of the functions of social workers and learned to ask for and accept their contributions rather than to try to direct their activities. It was also interesting to note that the discussion broadened to include the responsibilities of the physician as a member of society. The students became aware that they as physicians will have a responsibility for the development and maintenance of the social resources that are necessary to meet the needs of patients. They apparently became aware of the fact that the physician is not an isolated figure, but a member of a team and that his contribution has much more meaning when considered in the light of the patient's total situation and the society of which we are all members.

C. *The Department of Preventive Medicine.*—For the most part, medical students in their senior year approached the preventive medicine teaching period with passive indifference or even with some hostility. During this clerkship an attempt was made to correlate and integrate much of the past learning of the student and to widen his horizon from a fine, narrow focus on diseased cells or organs or organ systems to a broader view of the impact of disease upon

people as individuals—upon their families and upon society; to teach an appreciation of the effects of social, economic, and emotional stresses upon the production or maintenance of symptoms or signs of disease.

A measure of the success or failure of such a program is the reaction of the students in their acceptance and recognition of the importance of the environmental and emotional factors in health and disease. The following examples of comments made voluntarily and anonymously at the end of their clerkship periods indicate the change in attitudes that characterized many of the students.

One student stated, "I think this clerkship was a very valuable one. I regret not having it earlier in the senior year because a service such as this teaches one to look at medicine in a light other than symptoms and physical findings." Another wrote, "The study of the role of socioeconomic factors in the genesis, diagnosis, prognosis and therapeutic responses of human disease forms, as it properly should, the backbone of a course in preventive medicine. This personal contact with 'non-medical' factors in human ailments is an invaluable experience for the student. A serious student could not fail to leave the course without a genuine appreciation of the importance of the consideration of the impacts of social and economic factors on every patient and family with which he has contact in his professional life."

CONCLUSIONS

There is an obvious need for the inclusion in the medical curriculum of the effect of emotional and social factors in health and disease. The Department of Preventive Medicine, with its point of view and integrative program, appears to be in the best position to emphasize this importance of these factors. Because of the overlap with psychiatry and the psychological resistances encountered, the approach to such teaching is a special one and requires experience in handling the dynamics of the learning process, which for this material has a large therapeutic element.

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The 1948 Meeting Place

At a meeting of the Executive Council held February 5 and 6, 1948, it was voted unanimously to hold the 1948 annual meeting of the Association of American Medical Colleges in The Greenbrier, White Sulphur Springs, West Virginia, on November 8, 9 and 10. It was necessary to change the usual time of the meeting from the last week in October to the second week in November in order to secure the hotel reservations. The hotel is operated on the American plan. Further details regarding the meeting will be published later.

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Science and the Other Humanities

On the occasion of his inauguration as president of Carleton College (Northfield, Minnesota), Dr. Laurence McKinley Gould delivered an address with the title given above. It was a most interesting and informative address. Educators, medical as well as general, are urged to read it. Dr. Gould apparently has given much thought to his subject and gives the impression of one who speaks with some authority. Space forbids publication of the entire address or even of a liberal abstract, but Dr. Gould makes some points which we would like to stress as he has done.

Speaking of the humanities, he says: "The word humanities derives from the older branches of the curriculum in which the aim of education was to make man humane. The concept of the relationship of man and his institutions to his natural world is the first claim science has to being a humane study. After all, in a broad sense, education is the rational attempt to identify man with his universe." Dr. Gould evidently recognizes, as one in his position would, that a sharp division in definition and understanding of humanities—as coupled with science—has come to pass with the passage of time. Dr. Gould goes on to say: "Science is the principal continuing source of revealed truth about our world. Science is knowledge that has been tested and classified; it is a live, growing body of truth. . . . There is no field of man's activities, intellectual or otherwise, which is more completely international and unprovincial than science. . . . Science is quantitative; alone of the humanities it possesses techniques of measurement from which derive the critical faculties of man—the faculties of discrimination between truth and error."

Dr. Gould has much more to say on this topic but one statement of his will, no doubt, be accepted by all educators. It is charged that science has failed in the educational process. Dr. Gould admits that there is some foundation for this criticism—"but," he says, "it is not due to any inherent limitations in science but to ineffective and often indifferent teaching." That is a very significant statement. Much of the criticism waged against the value of this or that course is due entirely to the instructors. Students are presented with a mass of facts which they are expected to memorize—not understand—hence have failed utterly to get the educational value out of the course which they should have gotten. Dr. Gould says: "We have confused the accumulation of information for its own sake with education." Education is based on information—factual information—on knowledge but unless that knowledge can be applied properly, it is lost to education. Education is the ability to apply knowledge.

Continuing his discussion, Dr. Gould

says: "Too much emphasis has been placed on results; too little on methods." Science as a humanity must acquaint the student first of all with the methods by which science has accomplished so much. He is convinced that "as great cultural values can be derived from the study of chemistry or geology (Dr. Gould is a geologist) as from that of Latin and Greek if inspired teaching guides the student."

Dr. Gould urges that students be required to develop competence in some particular field of his choice. He believes that over specialization makes for rigidity; for nonadaptibility in a rapidly changing world. He suggests reducing the present thirty majors offered by the various departments in the college to, perhaps, a third that number. He believes that curricula of colleges "are composed of a hodgepodge of courses that have grown up through over zealous departmental specialization and promotion. They are generally uncoordinated and overlapping, often to the extent of actual duplication and all treated as though they were of equal importance." He would limit the number of courses and eliminate the elective system over large areas. He emphasizes that "this reform is long overdue."

There is much meat in this address. It deals with many topics that heve been subjects of discussion of educators but these discussions have not led to the desired end. What is needed is more get together of all the instructors in all the departments and a free and frank discussion of what the word "education" means in all its connotations. It is important to choose what is basic and what must be left to later acquirement. What is immediately essential for the end aimed at by the student. A careful reading of Dr. Gould's address will give much food for thought on the part of educators, especially if what is not said in so many words but is implied by what is said is noted.

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William Pepper

It is with the most profound feelings of sorrow that the death of William Pepper, aged 73, on December 3, 1947, is chronicled. Dr. Pepper attended the meetings of the Association of American Medical Colleges from 1912 to 1945 when he retired from the deanship of the University of Pennsylvania School of Medicine. He was president of the Association in 1921 and a member of the Executive Council for many years. He was a good friend and a wise councillor. His interest in medical education was intense. He contributed many good thoughts to the improvement of conditions. R. I. P.

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The Borden Award

Deans and heads of all departments in the member colleges of the Association of American Medical Colleges are urged to make known as widely as possible the fact that the Borden Foundation has given the Association an annual grant of $1,000 and a gold medal to be awarded to the individual, who in the opinion of a special Borden Award Committee of the Association has contributed the most outstanding research over a period of five years. The first award was given to Dr. Vincent DuVigneaud, professor of biochemistry in Cornell University Medical College at the annual meeting of the Association held in Sun Valley, Idaho, in October, 1947.

Nominations should be sent to the office of the Association together with five sets of supporting evidence, such as reprints, etc. No time limit for making nominations is set but it is advisable that nominations be made as quickly as possible so that the committee will have sufficient time to arrive at a conclusion and select the winner of the award. There is no compulsion to give the award annually—unless someone deserving of it is found.

The committee consists of: Dr. E. A. Doisy, chairman, St. Louis University; Dr. Brian Blades, George Washington University; Dr. Charles H. Best, University of Toronto; Dr. James M. McNaught, University of Colorado, and Dr. John B. Youmans, University of Illinois.

Application Cards

Some colleges have not yet sent to headquarters the application cards of applicants seeking admission to the 1947 freshman class. It is becoming increasingly important to have this information especially since medical schools are again operating on a normal basis and so many misstatements are being made by persons in official positions, organizations and individuals in general in regard to numbers applying for admission to medical schools; numbers accepted, etc. The resulting study of these cards makes it possible to give out accurate information, which, usually, controverts the erroneous statements made by the uninformed.

The 1947 cards are now being studied and analyzed. In the absence of cards from all medical schools, the study cannot be completed and only approximate information can be given. However, thus far, with data from six or seven colleges missing, it can be stated that approximately 51,000 applications were made, of which 7,400 were accepted. This does not give the number of applicants—only applications. In preceding years about 52 per cent of applicants were accepted with a general average of three applications per applicant—counting singles and multiples. The enrollment in all medical schools for the 1947 freshman class is 6,418. It may be necessary to add to that number about 75 or 100 repeaters for whom new enrollment blanks were not sent. That is a larger freshman class than the 1946 class. Exact figures will be available when this and other studies always made by the Association can be completed.

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Fellowships for Study of Tuberculosis

Teaching and research fellowships in the field of tuberculosis have been established by the National Tuberculosis Association. Annual stipends for the fellowships will range from $2,400 to $3,200. Provision will also be made for laboratory fees and incidental expenses of like character. The fellowships will be limited to graduates of American schools for teaching and investigation in the United States. While preference will be given to applicants with a Doctor of Philosophy or Doctor of Medicine degree, fellowships will not be restricted to the holders of these degrees. Applications will be considered in the fields of pathology and bacteriology, clinical medicine, epidemiology and social and statistical research. Applicants may elect the institutions in which they wish to study.

Persons interested in obtaining a fellowship should write to Dr. James E. Perkins, managing director, National Tuberculosis Association, 1790 Broadway, New York 19, N. Y., for further information.

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MacEwen Memorial Fund

A group of the medical faculty of the College of Medicine of the State University of Iowa has established the MacEwen Memorial Fund as a memorial for the late Ewen Murchison MacEwen, dean from 1935-1947; president of the Association of American Medical Colleges and at the time of his death in September, 1947, chairman of the Executive Council of the Association. The Fund has been accepted by the Iowa State Board of Education. The money contributed to this fund will be used to set up a useful and functional memorial in the library of the College of Medicine. Contributions should be sent to the office of the Dean, State University of Iowa College of Medicine, Iowa City, Iowa, payable to the MacEwen Memorial Fund.

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Veterans' Administration

Mr. Carl Gray has been appointed administrator to succeed General Omar N. Bradley, who is now Chief of Staff of the Army. Dr. Paul D. Harvey, chief medical officer, has resigned and will be succeeded by Dr. Paul Magnusson, who was very active in assisting Dr. Hawley in organizing the medical services of the Administration.

The Questionnaire

At the meeting of the Executive Council held February 5 and 6, an animated topic for discussion was the questionnaire—of which medical colleges are receiving samples in steadily increasing numbers. True, it is one method of initiating a study of a given problem, but for some time past, far too many such inquiries have been sent to medical colleges until supplying the information requested has become not only an arduous, time consuming task but also a most annoying chore. Deans and their staffs are swamped with routine work which a shortage of personnel is not in position to meet. Most of these questionnaires are indicative of the senders' inertia or unwillingness to do work on his own. Many of them never get beyond the questionnaire stage. Furthermore, much of the information asked for can be obtained from college catalogs and printed material. Then, too, the premises on which questionnaires often are based are wrong, hence information based on such premises cannot but confuse the issue—as everyone knows.

Within the last thirty days three such questionnaires have been received by medical schools. The worm is beginning to turn. In an attempt to help deans, the Executive Council passed unanimously a resolution that before a medical school answers a questionnaire, it be sumbitted to the Council for an opinion as to whether or not it should be answered. Every medical school is urged, therefore, if it wishes to avail itself of this ruling, to send every questionnaire to the office of the Association for an opinion as to whether it should be answered. This does not apply to the questionnaire sent out by the Council on Medical Education and Hospitals of the American Medical Association on which the data published in the Educational Number of that Journal are based. That study contains much of intense interest and information not obtainable elsewhere.

Here is help for overworked deans and their staffs as well as for members of faculties who often are approached directly by means of a questionnaire.

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National Health Assembly

Oscar R. Ewing, Federal Security Administrator, has announced the formation of a National Health Assembly, to be held in Washington, May 1-4. The Assembly is being set up as a result of the message of President Truman to Mr. Ewing of January 30 in which Mr. Ewing was requested to develop feasible national health goals for the next 10 years. Twenty-four national leaders in various fields have been invited by Mr. Ewing to serve on the executive committee of the Assembly, which will consist of representatives of public and private organizations and agencies in the country concerned with various phases of the Nation's health. Preliminary estimates are that from 700 to 800 people will attend the Assembly sessions.

Most of the activity of the Assembly will be in the form of panel discussions, each panel to explore fully a specific phase of the health problem. The number and membership of the panels will be announced shortly.

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Eagles in the Sky

Every once in a while there is published a book which, although, primarily, of a romantic nature, contains something of interest to the physician. He like every other person, likes to relax with a good book to read. If it contains something that deals with his profession, especially if it is historical in nature, he feels more than satisfied about how he has spent his relaxing hours. Such a book is "Eagles in the Sky," by F. van Wyck Mason and published by the J. B. Lippincott Company. The story deals with three young men who "read" medicine with a prominent Boston physician during the War of the Revolution years and after having secured certificates of competence served with the armed forces. Their experiences

are told well. The practice of medicine, especially surgery, is described and cannot fail to give pleasure to every physician whether he is historically minded or not. For your leisure hour, this book is recommended to you.

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Markle Foundation
Scholars in Medical Science

Sixteen young scientists have been appointed as the first group of Scholars in Medical Science, under the plan announced last fall by the John and Mary R. Markle Foundation to support qualified young scientists who wish to make a career in academic medicine. The scholars were selected from candidates nominated by accredited medical schools in the United States and Canada by regional committees appointed by the Foundation. Toward the support of the scholars and their research the Foundation has allocated a total of $400,000 to their respective medical schools, each school to receive $25,000 payable at the rate of $5,000 annually for five years.

As faculty members of the participating medical schools, the scholars will devote the next five years to teaching and research, at the end of which time they will have had an opportunity to become established teachers and investigators. An undetermined number of scholars will be appointed each year for the long range purpose of strengthening the faculties of medical schools, and medical education generally.

Following are the sixteen scholars whose appointments begin in 1948. Grants of $25,000 toward their support for five years will be made to the medical schools on whose faculties they now hold appointments.

Christian B. Anfinsen, Ph.D. A.B., Swarthmore College; S.M., University of Pennsylvania; Ph.D., Harvard Medical School. Field of research: biochemistry. Grant to Harvard Medical School.

Henry H. Balch, M.D. M.A. and M.Sc., Trinity College, Dublin, Ireland; M.D., Dublin University School of Physicians. Field of research: surgical infections. Grant to New York University College of Medicine.

Edward J. Beattie, Jr., M.D. B.A., Princeton University; M.D., Harvard Medical School. Field of research: surgery, cardiorespiratory physiology. Grant to the George Washington University School of Medicine.

Marcel E. Blanchaer, M.D. B.A., Queen's University Faculty of Arts; M.D., Queen's University Faculty of Medicine. Field of research: biochemistry. Grant to the University of Manitoba, Winnipeg.

Ivan W. Brown, Jr., M.D. B.S. and M.D., Duke University School of Medicine. Field of research: injury produced by transfusion. Grant to Duke University School of Medicine.

Robert H. Ebert, M.D. B.S. and M.D., University of Chicago School of Medicine; D. Phil., Oxford University. Field of research: pulmonary diseases. Grant to Division of Biological Sciences, University of Chicago.

Richard C. Fowler, M.D. B.S. and E.E., Massachusetts Institute of Technology; M.D., University of Rochester School of Medicine and Dentistry. Field of research: physiology; development of physico-chemical tools. Grant to University of Rochester School of Medicine and Dentistry.

Henry D. Hoberman, M.D. B.A. and Ph.D., Columbia University; M.D., Harvard Medical School. Field of research: biochemistry; metabolism of compounds by use of isotope tracers. Grant to Yale University School of Medicine.

Ralph A. Kinsella, Jr., M.D. A.B., St. Louis University; M.D., St. Louis University School of Medicine. Field of research: biological chemistry. Grant to St. Louis University School of Medicine.

Christian J. Lambertsen, M.D. B.S., Rutgers University; M.D., University of Pennsylvania. Field of research: pharmacology; cardiovascular and respiratory problems. Grant to University of Pennsylvania School of Medicine, Philadelphia.

William D. Lotspeich, M.D. A.B., Cornell University; M.D., University of Cincinnati College of Medicine. Field of research: kidney physiology. Grant to Syracuse University College of Medicine.

Preston B. Lowrance, M.D. B.S., University of Virginia; M.D., University of Virginia Department of Medicine. Field of research: cardiovascular disease. Grant to University of Virginia Department of Medicine.

Frederick D. McCandless, M.D., Princeton University; M.D., Cornell University Medical College. Field of research: neuropsychiatry. Grant to Albany Medical College.

Manson Meads, M.D. A.B., University of California; M.D., Temple University School of Medicine. Field of research: internal medicine; infectious diseases. Grant to the Bowman Gray School of Medicine, Winston-Salem, N. C.

Julius B. Richmond, M.D. M.S. and M.D., University of Illinois College of Medicine. Field of research: pediatrics. Grant to University of Illinois College of Medicine, Chicago.

Ralph O. Smith, M.D. B.S. and M.D., University of Chicago School of Medicine. Field of research: internal medicine. Grant to Washington University School of Medicine, St. Louis, Mo.

Survey on Medical Education

The plans for conducting this survey are not yet completed. The committee as constituted at present is hopeful that the time is near when the work on the survey can be started. The committee has held several meetings since the Sun Valley meeting. All parties interested in and concerned with the survey are in agreement as to how to proceed but a few minor, though important, details must still be worked out. It will be recalled that in the Sun Valley meeting the group to whom this undertaking was entrusted consisted of Drs. A. C. Bachmeyer and Jos. C. Hinsey, representing the Association of American Medical Colleges, and Drs. H. G. Weiskotten and Donald G. Anderson representing the Council on Medical Education and Hospitals of the American Medical Association, with the secretaries of both organizations members ex officio. A general plan of procedure was presented and approved. As soon as all arrangements are finally completed, public pronouncement will be made. Since this study will be a highly important one, "haste should be made slowly."

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Donald B. Tresidder

It is our very unpleasant duty to record the passing of Dr. Donald B. Tresidder, president of Stanford University, during a stay in New York City. According to newspaper reports, Dr. Tresidder was found dead in his hotel room. Death was from natural causes. Further details are not available at this time.

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Wade W. Oliver

After 31 years of teaching bacteriology to the medical tyro, Dr. Wade W. Oliver, professor of bacteriology in the Long Island College of Medicine, has retired to join the Division of Medical Sciences of the Rockefeller Foundation. He will assist in the placement of physicians from all over the world coming to America under fellowship and scholarship grants made by the Foundation.

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Schering Award for 1948

The interesting and vitally important subject of "The Role of Hormones in the Maintenance of Pregnancy" is the basis for The Schering Award for 1948. For the three best manuscripts submitted by undergraduate students of American and Canadian medical schools on such a designated phase of endocrinology, The Schering Award annually offers cash prizes of $500, $300 and $200. The Schering Award is sponsored by the Schering Corporation of Bloomfield, New Jersey.

College News

University of Illinois
College of Medicine

The Borden Company Foundation, Inc., has contributed $2,500 to the university for the establishment of research awards in medicine. The gifts will be officially known as the Borden Undergraduate Research Awards in Medicine. They will be administered under the direction of Dr. John B. Youmans, dean of the college. An award of $500 will be made each year over a period of not less than five years. All students in the graduating class of the college of medicine who have carried out undergraduate research in the medical field will be eligible for the award. It will be presented at the time of the recipient's graduation. The Borden Company has stipulated that originality and thoroughness of research will be of primary consideration. The research must be "the most meritorious performed by all similarly eligible persons."

Dr. Olaf Bergeim has been promoted to the rank of professor of biological chemistry. Dr. Bergeim has been serving as acting head of the department since last fall. He has been a member of the faculty of the University of Illinois since 1923.

The college has received a nutrition fellowship grant of $3,500 from Swift and Company, Chicago, for the study of amino acids in the blood under several conditions of disease. The project will be conducted by the department of surgery, under the supervision of Dr. Tilden Everson. The grant covers studies for the current year.

A research grant of $7,920 has been received from the Upjohn Company of Kalamazoo, Mich. The grant will be used to evaluate the use of pancreatic enzyme, "Lipase A," in the treatment of patients who have the symptoms of diarrhea due to pancreatic deficiency as to absorption and digestion of fatty foods. The study will be conducted by the department of medicine, under the direction of Dr. Michael H. Streicher.

A research grant of $2,700 has been received from Hoffmann-LaRoche, Inc., of Nutley, N. J. The grant will be used for the study of the use of a new sulfone product, intestinal antiseptic, in the treatment of chronic ulcerative colitis. The study will be conducted by the department of medicine, under the direction of Dr. Michael H. Streicher.

Dr. Warren H. Cole, head of the department of surgery, has been appointed Senior Scientist Attache to the United States Mission to Britain for Science and Technology. The mission will be conducted under the jurisdiction of the U. S. Department of State. Dr. Cole will serve with the mission for approximately three months as the representative in surgery. The mission is designed to establish liaison with British scientists in various fields, including medicine, engineering, and chemistry. The representatives in medicine will visit numerous British clinics.

Dr. Sidney P. Colowick of New York City has been appointed associate professor of biological chemistry. Dr. Colowick currently serves as an associate in the division of nutrition and physiology at the Public Health Research Institute, New York City. During the war, he conducted civilian research on chemical warfare agents under contract with the Office of Scientific Research and Development.

The Quine Library of Medical Sciences at the Chicago Professional Colleges of the University of Illinois now ranks as one of the largest university medical libraries in the nation with a total of 84,910 volumes.

Miss Wilma Troxel, medical librarian, reports that the Quine library has increased in size by approximately 34,000 volumes during the past decade. The library is now receiving 923 current journals.

The Hematology Research Foundation, Chicago, has given a $3,000 research grant for studies in leukemia. The studies will be conducted under the direction of Dr. Louis R. Limarzi.

Ciba Pharmaceuticals has made a grant of $1,500 to be used for the skin sensitizing properties of a nicotinic acid derivative. Dr. Adolph Rostenberg, Jr., of the department of dermatology, will conduct the research.

The Speech and Hearing Rehabilitation Division of the college, and the Illinois Eye and Ear Infirmary will sponsor a course for parents of preschool deaf and hard of hearing children. Registration for the course may be made by writing to Dr. Jean Utley, 904 W. Adams St., Chicago, or to Miss Mary Thompson, 30 West Washington St., Chicago. The course is free. Dr. Julius B. Richmond, associate professor of pediatrics, was named a Scholar in Medical Science by the John and Mary R. Markle Foundation. Dr. Nicholson J. Eastman, professor of obstetrics at Johns Hopkins Medical School, will deliver the 1948 Charles Sumner Bacon Lecture on April 14. He will speak on "Pelvic Mensuration; A Study in the Perpetuation of Error."

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Long Island College of Medicine

An endowed fellowship fund for medical research honoring the memory of the late Philip A. Benson has been established. Income from the fellowship of $34,200 will be awarded on an annual basis, and will defray in part, compensation of a man or woman selected to do investigative work in one of the college's basic science or clinical departments. Funds to support this project were subscribed by the savings banks of the State of New York and other interested friends and associates. The memorial committee obtained donations from 76 savings banks and individuals as a tribute to Mr. Benson who for many years was president of the Dime Savings Bank.

The Fifth Postgraduate Course in Industrial Medicine will be given during the two week period April 5 to April 16, 1948, and will be conducted under the auspices of the Department of Preventive Medicine and Community Health by a distinguished group of more than sixty leaders in industrial medicine, authorities in allied fields and members of the faculty. It will be the initial undertaking of the new Institute for Occupational Health, a unit of the college recently established to devote particular attention to the problems of health in relation to occupation. The main objective of the course is to provide physicians engaged in full time or part time industrial practice, as well as those who wish to enter this field, an opportunity to become acquainted with the most recent developments in the rapidly expanding specialty of industrial medicine.

Dr. J. Raymond Johnson, acting professor of physiology, resigned to become professor of physiology at the University of Ottawa School of Medicine.

Promotions: Dr. Herbert C. Fett from clinical professor to professor of clinical orthopaedic surgery, and Dr. Louis Berger from assistant professor to associate professor of clinical surgery.

New Appointments: Llewellyn T. Evans, assistant professor of anatomy; Meyer A. Rabinowitz, associate professor of clinical medicine; Edmund L. Shlevin, Alexander H. Louria and Leo Loewe, assistant professors of clinical medicine; Henry W. Louria and Rudolph Nissen, assistant professors of clinical surgery; Saul Schapiro and Irving M. Pallin, instructors in clinical surgery; Milton G. Wasch, associate professor of clinical radiology; Bernard S. Epstein, instructor of clinical radiology; L. Holland Whitney, assistant professor; Jene B. Aronson, Marta Fraenkel, associates; Eva Landsberg, instructor; Lawrence Kaskin, assistant in the Department of Preventive Medicine and Community Health; Paul Aschner, assistant professor of clinical urology.

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New York University
College of Medicine

As a result of the generosity of the Milbank Memorial Fund, coupled with

a $25,000 gift from Bernard Baruch, the Institute of Rehabilitation, one of the principal units of the proposed New York University-Bellevue Medical Center, January first established interim quarters. The institute, a hospital and outpatient clinic maintained by the College of Medicine, and offering rehabilitation training to crippled and disabled persons not otherwise provided for, plans to receive patients as soon as necessary changes are made in the new quarters. A campaign for $2,500,000 to build a permanent home for the Institute of Rehabilitation which will be a model center for care, research and teaching in this "third phase" of medicine which takes patients "from the bed to the job," is part of a current appeal for $15,575,000 for a new university section of the New York University-Bellevue Medical Center.

A joint survey of approximately 1,000 persons with heart disease to determine the appropriateness of their jobs and to offer guidance to those in unsuitable vocations will be undertaken by the college and the Division of Vocational Rehabilitation of the New York State Department of Education. The survey will be carried out in the Bellevue Hospital Cardiac Clinic and will include all of the cases seen in that clinic over a year's period. University doctors under Dr. Charles E. Kossman, assistant professor of medicine at the college and director of the clinic, will continue to be responsible for the diagnosis and complete care of the patients as well as for the evaluation of their physical capacities. Added to the clinic's staff will be a group of interviewers from the State Office of Vocational Rehabilitation who will cooperate with the doctors and Bellevue Social Service workers.

Dr. Clarence E. de la Chapelle, associate dean, has been appointed a director of medicine at Lenox Hill Hospital. He will continue to serve in his capacities as associate dean, director of the Postgraduate Division and professor of clinical medicine. Dr. J. Murray Steele, associate professor of medicine, has been appointed a full professor of medicine and director, Third (N. Y. U.) Research Service, Goldwater Memorial Hospital.

A community project to aid family doctors in keeping abreast of rapidly advancing medical developments will be inaugurated March first. Dr. William Goldring is chairman of the Committee on Science and Education of the College Alumni Association, and sponsor of the plan. Heart disease, psychiatry, anaesthesia, dermatology, and rehabilitation and physical medicine will be comprehensively treated in 24 clinical sessions, open, free of charge, to members of the medical profession, with college faculty members in charge. Present plans call for the clinics to be conducted throughout March, April and May.

The annual John Wyckoff lectures were delivered February 16 and 17 by Professor Bernardo A. Houssay, M.D., Director, Institute of Biological Research, Buenos Aires, Argentina. Dr. Houssay spoke on "Carbohydrate Metabolism and Diabetes," devoting the first hour on the 16th to "The Role of the Hypophysis in Carbohydrate Metabolism and Diabetes," and the second hour, on the 17th, to "Alloxan Diabetes."

Appointments: Dr. Edgar Lawrence and Dr. Harry Wechsler, assistant clinical professors of medicine; Dr. Isidor Rubin, clinical professor of obstetrics and gynecology; Dr. Alfred Vignec, clinical professor of pediatrics. Promotions: Dr. Israel S. Freiman, to assistant clinical professor of neurology; Dr. William M. Dick to associate clinical professor, and Miles Atkinson, assistant clinical professor of otorhinolaryngology. Dr. Charles Gottlieb, professor of radiology and chairman of the department of radiology. Dr. William P. Anslow, Jr., and Dr. Laurence G. Wesson, assistant professors of physiology. Dr. George Deaver, to professor of clinical rehabilitation and physical medicine. Dr. Margaret Kennard, associate professor of anatomy, has resigned.

University of Colorado
School of Medicine

Dr. John A. Lichty, Rochester, N. Y., has been appointed assistant professor of pediatrics. Dr. Lichty will be in charge of the postgraduate pediatric educational program of the Colorado State Department of Health and the University of Colorado and will assist in developing the rural intern training program, the premature baby program, well baby conferences and the rheumatic fever program, which are joint responsibilities of the state health department and the university.

A research grant of $4,000 from The Lilly Research Laboratories of Eli Lilly and Company, Indianapolis, has been made to Dr. James B. McNaught, professor of pathology. The grant will be used for experimental studies of therapeutic agents in trichinosis. Under a special grant from the National Foundation for Infantile Paralysis, the Medical Center has received a special treatment wading tank for polio patients.

Dr. James J. Waring has resigned as the administrative head of the Department of Medicine. He will be retained on a full time basis as a teaching professor.

Gifts totaling more than $3,830 have been received. Donors include: The American Legion Auxiliary, $1,500 for rheumatic fever research; Miss Elizabeth L. Davis, $230 to the Medical Center Advisory Board for medicines and transportation of needy patients; Dr. James J. Waring, $1,000 for purchase of equipment for the division of industrial medicine; Mrs. Robert D. Charlton, $100 for equipment for the orthoptics clinic, given in memory of her father, the late Dr. James A. Patterson; and Dr. C. W. Bixler, of Ft. Sam Houston, Texas, $1,000 for research in the department of clinical pathology.

Dr. O. T. Clagett, chief of the section on thoracic surgery at the Mayo Clinic in Rochester, Minn., has established an annual lectureship in surgery. The first lecturer will be Dr. Owen H. Wangensteen, professor of surgery at the University of Minnesota. He is expected to arrive in April.

Students from a 5 state area have enrolled in the new physical therapy school at the Medical Center. The new school is the first civilian training course for physical therapists in the Rocky Mountain area. Set up to meet the standards of the American Medical Association, the physical therapy school trains technicians in the treatment of injury and disease by the use of such physical agents as heat, cold, light, water, electricity, massage and exercise. On completion of the course, physical therapists can practice in any recognized hospital and are eligible for the national registry examination. A new class in physical therapy will open in September. To be eligible to enroll, students must have had three years of college training or be a registered nurse.

Dr. H. Mason Morfit of the Memorial Hospital, New York City, has been appointed assistant professor of surgery.

In honor of Dr. Franklin P. Gengenbach, former professor of pediatrics, a special library of pediatric books is being established by the Rocky Mountain Pediatric Society. The medical school has been invited to participate in the first Poliomyelitis International Conference sponsored by the National Foundation for Infantile Paralysis to be held in New York City.

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Wayne University
College of Medicine

Grants recently made by the United States Public Health Service for the support of research include: $24,750 from the National Cancer Institute for a grant in Cancer Teaching research, under the direction of the Dean; $10,200 for research on Physiological Processes in Movable Joints under the direction of Dr. Ernest D. Gardner; assistant professor of anatomy; $8,500 for research on Intestinal Obstruction under the direction of Dr. Rudolph J. Noer, associate professor of surgery;

$11,912 renewal of grant for research in Prothrombin and Thrombin, under the direction of Dr. Walter H. Seegers, professor and chairman of the Department of Physiology.

The Kresge Foundation extended a grant-in-aid to the Department of Pathology, in the amount of approximately $33,000 to be spent over three years' time to support research in multiple sclerosis. This grant is under the direction of Dr. Gabriel Steiner, professor of neuropathology.

The postgraduate program in medicine under the direction of Dr. Arthur H. Smith, includes 129 enrolled this quarter in the Graduate School of the University for courses leading toward advanced degrees in medicine, and 108 participating in continuation courses offered by the College of Medicine.

The American Trudeau Society, the Medical Section of the National Tuberculosis Association, will sponsor a postgraduate course in thoracic diseases to be presented under the auspices of the Detroit Department of Health and Wayne University College of Medicine, Detroit, Michigan, March 22-26, 1948. The registration will be limited to thirty physicians. The course is intended primarily for physicians who reside in the following states: Ohio, Indiana, Michigan, Illinois, Wisconsin, Missouri, Iowa and Minnesota.

The Committee on Administration has recently voted to combine the Departments of Physiology and Pharmacology under the chairmanship of Dr. Walter H. Seegers.

Dr. Sol Haberman, immunologist at the Buchanan Laboratory at Baylor University, Dallas, Texas, came at the invitation of Phi Delta Epsilon, to give a lecture series dealing with problems of the "Rh Factor," in human blood groups, November 12, 13, and 14.

Dr. T. V. Hoagland, Director of the Psychopathic Division of the Receiving Hospital, has been granted a leave of absence to serve as a representative of the Surgeon General's office on an inspection trip through hospitals in the American Occupational Zone in Germany. Grants in aid totaling approximately $50,000 have been received from the United States Public Health Service to support research projects already under way in the college. They include Cardiovascular Research, under the direction of Dr. Gordon B. Myers; Prothrombin and Thrombin, under the direction of Dr. Walter H. Seegers; Physiological Processes in Movable Joints, under the direction of Dr. Ernest Gardner; Physiological Presponses to Distention of the Small Intestine, under the direction of Dr. Rudolf J. Noer.

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University of Texas
Medical Branch

Dr. Jack Still, professor of biochemistry at the University of Sydney, recently visited the Medical Branch to survey studies on enzyme chemistry being made by Dr. Witkor Nowinski, research associate in the Tissue Culture Laboratory. Dr. Still is a Rockefeller Traveling Fellow and plans to work with Dr. David E. Green at Columbia University.

Dr. Hans Molitor, director of the Merck Institute for Therapeutic Research, is making a trip through Central America to study Indian and Mayan drugs. He reported at the Medical Branch the latter part of January and gave a special lecture on "The Pharmacology of Antibiotics."

Dr. Wilbur A. Selle, professor of physiology and director of the Laboratory of Medical Physics, has been appointed visiting professor of physiology at the University of Arkansas School of Medicine. Dr. Selle will spend several weeks at the close of the semester at the University of Arkansas. He will return to Galveston to direct a postgraduate course in physical medicine to be held March 1st to 5th, 1948, at the University of Texas Medical Branch.

Francis R. Dieuaide, M.D., director of the Life Insurance Medical Research Fund, surveyed recently the research projects relating to cardiovascular prob-

lems now in progress at Texas. These projects include studies on renal hypertension in the Physiology Laboratory under the direction of Dr. Eric Ogden, professor of physiology, experimental hypertension studies in the Laboratory of Experimental Medicine under the direction of Dr. Raymond Gregory, professor of medicine, and clinical cardiovascular studies in the Cardiovascular Laboratory under the direction of Dr. George Herrmann, professor of medicine.

The sum of $300,000.00 for a teaching and research unit in tuberculosis will become available to the university under the terms of the will of the late Mrs. Rosa H. Ziegler of Galveston. The unit will be named the Henry and Rosa H. Ziegler Tuberculosis Hospital, and will afford facilities for teaching and research in acute and chronic tubercular conditions.

Dr. Benjamin B. Wells, formerly dean of the University of Arkansas School of Medicine, has been appointed director of research and head of the department of clinical pathology at the University of Texas, Houston.

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Hahnemann Medical College

The Beta Zeta Chapter of Phi Delta Epsilon Fraternity was addressed by Dr. Wallace Yater, formerly a member of Georgetown University School of Medicine faculty, on the subject of "Coronary Artery Disease of Young Men."

New appointments: Dr. John E. Gregory, professor of pathology and head of the division of pathology; Dr. Amedeo Bondi, professor of bacteriology and head of the Department of Bacteriology; Dr. Emerson A. Reed, assistant professor of physiology; Dr. Julian V. Flaig, assistant professor of physiology. Full time instructors in the clinical departments: Dr. Alexander W. Ulin, surgery; Dr. Otto H. Janton, medicine; Dr. Albert M. Lupton, medicine; Dr. Joseph N. Seitchik, obstetrics and gynecology. Dr. Julian V. Flaig, assistant professor of physiology, died December 12, 1947.

The following hospitals have become affiliated with the college for clinical teaching: Mount Sinai Hospital, Philadelphia; Memorial Hospital, Wilmington, Del.; Hamburg Sanitorium, Hamburg, Pa. There are now nine hospitals affiliated with the Hahnemann Medical College.

A grant of $21,400 has been received from the United States Public Health Service, the National Cancer Institute, in support of a cancer teaching project under the direction of Dr. Stanley P. Reimann, head of the Department of Oncology.

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University of Oregon Medical School

New appointments: Dr. Charles Bradley, associate professor of pediatrics and psychiatry, full time; Dr. Frederick P. Haugen, associate professor of surgery in anesthesiology and head of the Division of Anesthesiology, full time; Dr. John B. Graham, associate professor of surgery, full time; Dr. Margaret Kennard, associate professor of surgery and neurophysiology, full time; Dr. Clifford Hardwick, assistant clinical professor of surgery.

Final plans have been approved for a new laboratory and administration building and $751,000 has been assigned for this project. The building will provide office, classroom and laboratory space for the departments of physiology, pathology and public health and adequate space for administrative offices of the medical school. Work is now being completed on a $125,000 project for the remodeling of the animal quarters. Principal features of the new quarters include tiled floors and corridors, air conditioning, acoustically treated ceilings and separate flush type drains in each animal room. The floor in each room slopes to the drain and it is possible, therefore, to wash down the walls and the floors to provide thoroughly clean rooms. The alterations include construction of a steam sterilization room which will be large enough to permit sterilization of an entire section of cages at one time.

Orders have been placed to furnish new animal cages throughout the entire floor. Dog cages will be of stainless steel and have been specially designed to incorporate the best features of cages now in use. Previous small animal cages have been replaced by new ones.

Schering Corporation has given Dr. Carl Heller a grant to continue his studies on endocrinology.

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Columbia University
College of Physicians and Surgeons

Dr. Gioacchino Failla, professor of radiology, was one of the recipients of the gold medal presented by the Radiological Society of North America for outstanding contributions to radiology at its recent annual meeting.

Columbia has been awarded a grant of $31,500 by the Rockefeller Foundation for "investigation of the interaction of hereditary and environmental factors in relation to the problems of aging." The grant, a renewal of an original gift made by the foundation in 1945 to the New York State Psychiatric Institute, a part of the Columbia-Presbyterian Medical Center, will carry on a three year or longer investigation on the health status and activities of twins over 60 years of age. A number of state and private agencies are cooperating.

Promotions: Dr. Alexander H. Gutman, associate professor of medicine; Dr. Dan H. Moore, associate professor of anatomy. New appointments: Dr. Ralph A. Deterling, Jr., assistant professor of surgery; Dr. Louis D. Zeidberg, assistant professor of epidemiology.

Dr. James A. Miller replaces Dr. Eugene H. Pool, resigned, on the Joint Administrative Board of the Columbia-Presbyterian Medical Center.

A grateful father, whose epileptic son regained his health through use of newly developed drugs, has contributed $5,000 for further research on the disease. The money will be used to continue research in the Neurological Institute and the Baird Foundation Clinic.

Dr. Otto Lowenstein has been appointed clinical professor of neurology. Dr. Cushman D. Haagensen has been promoted to be associate professor of clinical surgery.

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Duke University
School of Medicine

A month's course in Medical Mycology, under the direction of Dr. Norman F. Conant, is to be offered at Duke June 28-July 30, 1948. The course has been designed to insure a working knowledge of the human pathogenic fungi. Emphasis will be placed on the practical aspects of the laboratory as an aid in helping establish a diagnosis of fungus infection. Insofar as possible and as patients become available, methods of collecting materials in the clinic for study and culture will be stressed. Work with patients, clinical material, cultures and laboratory animals will serve as a basis for this course. Also, an opportunity to study pathologic material, gross and microscopic, will be given those whose previous training would allow them to obtain the greatest benefit from a study of such material.

The number of applicants for the course will be limited and the applications will be considered in the order in which they are received. An attempt will be made, however, to select students on the basis of their previous training and their stated need for this type of work.

A fee of $50 will be charged for this course, on the completion of which a suitable certificate will be awarded. Direct inquiries to Dr. Norman F. Conant, Duke University School of Medicine, Durham, N. C.

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University of Wisconsin
Medical School

The Cancer Research Group, associated with the McArdle Memorial Laboratory of the Medical School is to present the scientific program for the January meeting of the University Medical Society, on the 6th of the month. The McArdle Memorial Laboratory is

one of eight similar institutions in the United States which is devoting full time study and investigative research to the problems of cancer. Dr. Harold Rusch is director of that organization.

The Dr. Charles R. Bardeen Memorial Lecture was delivered by Dr. George W. Bartelmez, professor of anatomy at the University of Chicago, February 17, 1948. This annual lectureship is sponsored by Phi Chi Medical Fraternity at the University of Wisconsin. Dr. Bardeen was the first dean and professor of anatomy of the Wisconsin Medical School, serving in that capacity from 1907 until the time of his death in 1935.

Dr. David R. Linicome has been appointed assistant professor of parasitology in the department of parasitology. Dr. Frederick Rasmussen, Jr., was appointed associate professor of microbiology and preventive medicine.

An Institute on Cancer will be held from March 22 to March 25 under the sponsorship of the medical school, the Wisconsin Division of the American Cancer Society; the State Board of Health; the State Laboratory of Hygiene, and the McArdle Memorial Laboratory for Cancer Research. Details regarding this program may be obtained by writing to Dr. L. R. Cole, 418 N. Randall Avenue, Madison 6, Wisconsin.

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Southwestern Medical College

Through the instruction of such courses as pathology, heart disorders, pediatrics and other correlated subjects to Texas State College for Women students, the medical college is aiding TSCW round out its course of occupational therapy. Dr. Ozro T. Woods, clinical associate professor of surgery and surgical pathology, is director of the course. The girls commute to the medical college each Tuesday night for three hours of medical lectures.

The Damon Runyon Cancer Research Fund and the Variety Club Foundation of Texas have jointly givven $100,000 to Southwestern for cancer research.

A new clinical assignment recently accepted by Southwestern is supervision of psychiatric consultations at the Southern Methodist University student health center. Dr. Don P. Morris, associate professor of neuropsychiatry at the medical college, supervises the consultations.

Under the present plan for the service, Dr. John C. Montgomery, assistant in neuropsychiatry at Southwestern, consults with students referred to him by doctors on the health center staff.

A new aid to patients in the psychiatric wards of Parkland Hospital in Dallas has been instituted through the cooperation of the Theological School of Southern Methodist University. A senior theological student has begun part time work in the wards as an attendant.

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University of Cincinnati College of Medicine

The department of psychiatry has been awarded a $175,000 grant by the Rockefeller Foundation, effective January 1. The grant covers a five year period and is to be used for the development of psychiatry under Dr. Maurice Levine, professor and head of the psychiatry department. Two other grants have been awarded to the department this year: The first was $28,800 from the Commonwealth Foundation for use in joint projects of the departments of psychiatry and internal medicine under Drs. Levine, Marion A. Blankenhorn, professor of medicine and head of the department, and Eugene B. Ferris, associate professor of medicine. The other was $22,150 from the U. S. Public Health Service for use under the Mental Health Act passed by Congress.

The ophthalmology department is establishing an eye laboratory under the direction of Dr. Donald J. Lyle, professor and head of the department. The work of the laboratory currently is concerned with the examination of eyes for diagnosis and the preparation of specimens for collection and study. Facilities and services of the laboratory will be available to physicians in Ohio, Indiana and Kentucky.

University of California
Medical School

Dr. Charles M. Carpenter has been appointed professor and chairman of the department of infectious diseases at the Medical School of the university in Los Angeles. This will be a major department which will include bacteriology, virology, parasitology and tropical medicine. Dr. Carpenter was formerly associate professor of bacteriology and public health at the University of Rochester School of Medicine. Dr. Ruth A. Boak, formerly associate in bacteriology at Rochester, has been appointed associate professor of infectious diseases.

Dr. John S. Lawrence, associate professor of medicine, University of Rochester School of Medicine, has resigned to become professor of medicine and chairman of the department at Los Angeles. He will join Dr. Stafford L. Warren, who became dean of the school last February.

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Stanford University
School of Medicine

Edward L. Tatum, Ph.D., professor of microbiology at the Institute of Microbiology, Yale University, New Haven, Conn., has been appointed professor of biology at Stanford University. A graduate of the University of Wisconsin, 1935, Dr. Tatum was a research associate and later an assistant professor of biology at Stanford from 1937 to 1945, when he accepted an associate professorship at Yale.

Dr. John A. Luetscher, Jr., assistant professor of medicine at Johns Hopkins University, Baltimore, will join the faculty in the fall as associate professor of medicine. He received his M.D. degree from Johns Hopkins University in 1937 and has been on the medical school's faculty since 1940.

Acting President Alvin C. Eurich has announced the following promotions: Dr. Sidney Raffel to professor of bacteriology; Doctors L. A. Rants and David A. Rystand, associate professors of medicine; Doctors L. L. Rather, David C. Regnery and Victor Richards to assistant professors in pathology, biological sciences and surgery, respectively.

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University of Chicago
Medical School

Dr. Wright R. Adams, associate professor of medicine, and Merle C. Coulter, Ph.D., professor of botany, have been appointed associate deans in the division of biologic sciences at the university. Working under Dr. Lowell T. Coggeshall, dean of the division, Dr. Adams, who has been in the department of medicine at the university for the past sixteen years, will be responsible for the clinical departments and the school of medicine. He will also assist in the planning of the new hospital buildings at the university: the Nathan Goldblatt Memorial Hospital for Cancer, the Charles Gilman Smith Hospital for Infectious Diseases and the Gertrude Dunn Hicks wing to Albert Merritt Billings Hospital. Dr. Coulter will have charge of the nonclinical departments in the biologic sciences — anatomy through zoology.

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George Washington University
School of Medicine

In commemoration of the financial assistance given by the W. K. Kellogg Foundation, the medical school, in 1945, established the Kellogg Medical Lectures, planned primarily for practicing physicians in the Washington area. The course consists of 18 lectures, each lecture dealing with a special subject and delivered by an acknowledged authority in his field. The 1948 series began January 27 and will extend through April 13.

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State University of Iowa
College of Medicine

A new resident training program in psychiatry, organized by Dr. Paul E. Huston, assistant professor of psychiatry, will be initiated July 1, 1948. The program is designed to train physicians for the practice of psychiatry and as teach-

ers and research workers in this field. Candidates who complete the program and who write an acceptable research dissertation will be awarded the degree of Master of Science in Psychiatry. The instruction will cover a period of three years. Physicians who do not desire to become candidates for the degree and who may wish to attend shorter periods of training may make special arrangements.

Dr. Nathan A. Womack, associate professor of clinical surgery, Washington University School of Medicine, has been appointed professor and head of the department of surgery, succeeding Dr. Frank R. Peterson, who resigned.

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Yale University
School of Medicine

Provision has been made for the expansion of facilities for postgraduate education of Connecticut physicians. Dr. William R. Willard, associate professor of public health, has been appointed assistant dean in charge of these courses. This program will have two aims: (1) Provision for short and long refresher courses; and (2) Assistance to small Connecticut hospitals in training resident physicians who are preparing to become specialists in various medical fields.

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Marquette University
School of Medicine

A library on obstetrics and women's diseases has been established in honor of the late Mrs. Clara B. Hipke, former president of the Maternity Hospital Dispensary Association. An initial donation of $16,500 has been received. Additional funds will be available when the association completes dissolution.

◆ ◆

University of Kansas
School of Medicine

Dr. Harry Wahl, dean since 1923, has resigned the deanship but will retain his professorship in pathology until his retirement next year. His successor as dean is Dr. Franklin D. Murphy. Dr. Robert E. Stowell has been appointed professor of pathology and oncology. He will have charge of the newly instituted Cancer Research activities in this school. Four of his former associates on the faculty of Washington University will assist him in this work. Doctor Stowell was assistant professor of pathology at Washington University.

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Tufts College Medical School

A gift of $300,000 was received by the Bingham Associates Fund which supports the New England Medical Center, Boston, from Jacob Ziskind, Fall River, an industrialist. Leonard Carmichael, Ph.D., president of Tufts College and chairman of the fund, said that the money would be used to purchase a medical research building for the center. Participating institutions include the Joseph H. Pratt Diagnostic Hospital, Boston Floating Hospital, Boston Dispensary and Tufts Medical School, the teaching base.

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Jefferson Medical College

A grant has been received from the Schering Corporation to continue studies on endocrinology, to be conducted by Dr. Abraham Rakoff.

The Annual Lecture given by the Alpha Omega Alpha Honorary Medical Society of Jefferson was held February 19, 1948. The speaker was Dr. Shields Warren, director of the Division of Biology and Medicine of the Atomic Energy Commission; pathologist to the New England Deaconess and Collis P. Huntingdon Hospitals, assistant professor of pathology, Harvard University School of Medicine. Subject: "Medical Aspects of Atomic Energy."

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Medical College of Alabama

Dr. E. T. Bell, professor of pathology, University of Minnesota, delivered the annual Stuart Graves Lecture February 27. This lecture is sponsored by

Beta Phi Chapter of Nu Sigma Nu Fraternity.

Dr. Louis L. Friedman has resigned as assistant professor of medicine. Drs. Howard L. Holley and Stephen Stigler have been appointed full time instructors in medicine. Dr. Warner W. Carlson has been appointed associate professor of biochemistry. He was formerly associated with the Mellon Institute.

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Baylor University
College of Medicine

Through contributions made to the Baylor University College of Medicine Alumni-Faculty Foundation and to the medical college by alumni, faculty members and other friends of Dr. Hambleton, an endowment is being established for a professorship of physiology as a memorial to Dr. Benjamin F. Hambleton, a member of the faculty for 27 years. The professorship will become effective at the beginning of the academic year 1948-1949. Dr. Hambleton came to Baylor in 1920 as professor of pharmacology and biochemistry. He served in this capacity until 1930 when he accepted appointment as professor of physiology and pharmacology. He died December 9, 1947, aged 75.

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University of Virginia
School of Medicine

A research grant of $24,800 has been received from the Cancer Control Branch of the Federal Security Agency. A bequest of $10,000 for medical research was included in the will of the late Mrs. Lottie Antrim of Waynesboro, Virginia, as a memorial to her late daughter, Miss Mildred M. Antrim.

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Medical College of Virginia

A new department of anesthesiology has been opened to offer training to physicians who desire to specialize in anesthesiology. The department will also improve the handling of anesthetics for patients in the hospital. Dr. William E. Pembleton has been named to serve as director of the new department. Dr. Pembleton is a graduate in medicine from the University of Pennsylvania and was associated with a Hartford, Connecticut, hospital at the time of his appointment.

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Northwestern University
Medical School

Dr. Edward L. Jenkinson, senior director of the department of radiology in St. Luke's Hospital, has been appointed professor and chairman of the department of radiology at Northwestern, to succeed Dr. James T. Case, who resigned and is now professor emeritus, after 32 years of service.

Dr. Howard C. Ballinger has been appointed professor of otolaryngology, and chairman of the department. He succeeds Dr. G. Gordon Wilson, who retired.

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University of Southern California
School of Medicine

Dr. James N. De Lamater, associate professor of medicine, has been appointed assistant dean. Dr. Hoyt will do bacteriological research in the tuberculosis control division of the U. S. Public Health Service at the Barlow Sanatorium. He will continue to serve the university as professor of bacteriology.

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Dalhousie University
Faculty of Medicine

Dalhousie University, Halifax, Nova Scotia, invites applications for the post of Professor of Pharmacology. Good facilities for teaching and research. Salary $4,500, increasing by annual increment to $5,500. Preference for medical graduate. Apply giving qualifications and references to: Dean H. G. Grant, The Medical Faculty, Dalhousie University, Halifax, Nova Scotia.

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University of Tennessee
College of Medicine

Dr. Wm. M. Keeling and Dr. Sigwin B. Raska have been appointed instructors in physiology.

Book News

Aids to the Diagnosis and Treatment of Diseases of Children

By F. M. B. Allen, M.D., Lecturer in Infant Hygiene and Diseases of Children, Queen's University, Belfast. Ed. 8. Balliere, Tindall and Cox, London. 1947.

Rewritten and brought up to date.

◆ ◆

Manual of Clinical Therapeutics

By Windsor C. Cutting, M.D., Professor of Therapeutics, Stanford University School of Medicine. Ed. 2. W. B. Saunders & Company, Philadelphia. 1947. Price, $5.

It is always heart warming to see a book devoted to treatment. This is a handy little volume, giving complete coverage of the field in concise but clear verbiage. In 9 appendices are set forth diet lists, tables and charts of various sorts, list of prescriptions, drugs and dosage, etc. Students will welcome this book.

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A Textbook of Mental Deficiency (Amentia)

By A. F. Tredgold, M.D., Consulting physician to University College Hospital, London. Ed. 7. The Williams & Wilkins Company, Baltimore. 1947. Price, $8.50.

Revised and brought up to date.

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A Manual of Pharmacology and Its Application to Therapeutics and Toxicology

By Torald Sollmann, M.D., Professor Emeritus of Pharmacology and Materia Medica, School of Medicine, Western Reserve University. Ed. 7. W. B. Saunders Company, Philadelphia. 1947. Price, $11.50.

The worth and authority of this book is so well established that anything a reviewer would say would be futile articulation. It is complete, giving full coverage, and based on many years of study and experience. It is tops as an authoritative text in pharmacology.

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Applied Medical Bacteriology

By Max S. Marshall, Ph.D., Medical Center of the University of California. Lea & Febiger, Philadelphia. 1947. Price, $4.50.

Clinicians, public health workers, sanitary inspectors will all find this work helpful. It reflects many years of practical teaching experience. An outstanding feature is the 160 page chapter on diseases.

Minor Surgery

By Frederick Christopher, M.D., Associate Professor of Surgery, Northwestern University Medical School. Ed. 6. W. B. Saunders Company, Philadelphia. 1947. Price, $12.

Based on thirty years of outpatient and hospital practice. A complete revision of previous editions with much of the text rewritten and much new material added. It is impossible to review a work as extensive as this one is—but the reputation of the author is sufficient guarantee that it is good and worth owning.

◆ ◆

A Textbook of Pathology: An Introduction to Medicine

By William Boyd, M.D., Professor of Pathology and Bacteriology, University of Toronto. Ed. 5. Lea & Febiger, Philadelphia. 1947. Price, $10.

New sections added; other sections rewritten. Bringing the clinical picture together with the pathologic findings is still an outstanding feature of the book, one that should have a strong appeal for the medical student. It is, on the whole, a highly commendable textbook of pathology.

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Illustrative Electocardiography

By Julius Burstein, M.D., Chief of the Cardiac Clinic, Morrisania City Hospital, and Nathan Bloom, M.D., Associate Professor of Medicine and Chief of the Department of Electrocardiography, Medical College of Virginia. Ed. 3. D. Appleton-Century Company, Inc., New York. 1948. Price, $6.

Reproductions of typical electrocardiograms are shown on the right hand page with descriptions, interpretations and diagnoses on the left hand page. These records have been selected from thousands on the basis of a serial selectivity. Their clinical application is stressed. A great help for learning more about electrocardiograms—which is important.

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Modern Treatment of Gastric Ulcer

By Asher Winkelstein, M.D., Assistant Professor of Clinical Medicine, Columbia University. Oxford University Press, New York. 1948. Price, $4.

The author's continuous intragastric drip therapy is presented in detail. Other methods employed in treatment are also discussed.

Textbook of Embryology

By Harvey E. Jordan, Ph.D., Sc.D., Professor of Anatomy and Director of the Anatomical Laboratories, University of Virginia. Ed. 5. D. Appleton-Century Company, New York. 1947. Price, $7.50.

This edition provides the medical and premedical student with our present knowledge of human embryology from the seventh day to the end of the second month and, in some cases of certain organs and symptoms, through the later stages to parturition. The human data are fortified by recent data based on such nonhuman material as the monkey, frog, pig, chick, starfish egg for maturation of the female germ cell and for cleavage and gastrulation, grasshopper test is for maturation of the male germ cell, and the egg of the ascaris for fertilization. Comparative data, occasional functional interpretations and such important topics as sex determination, phylogeny, eugenics, twinning and teratology are also included along with applications of ontogenetic data. The laboratory outline is sufficiently complete for practical purposes.

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Biochemistry for Medical Students

By William Veale Thorpe, Ph.D. (Lond.), Reader in Chemical Physiology, University of Birmingham. Ed. 4. The Williams & Wilkins Company, Baltimore. 1947. Price, $5.

Revised and rewritten, with addition of a new chapter on use of isotropes in biochemical investigations. A good book for the medical student.

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Histopathologic Technic

By R. D. Lillie, M.D., Medical Director, U. S. Public Health Service, Chief, Pathological Laboratory National Institute of Health. The Blakiston Company, Philadelphia. 1947.

Systematic treatment of recent advances in histopathologic technic, detailing methods tried and true.

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Diagnosis of Uterine Cancer by the Vaginal Smear

By George Papanicolaou, M.D., Department of Anatomy, and Herbert F. Traut, M.D., Department of Obstetrics and Gynecology, Cornell University Medical College. The Commonwealth Fund, New York. 1948. Price, $5.

Presents descriptions and illustrations in color of cells which are derived from various kinds of cancer of the uterus and, for comparison, of cells normally present in the vagina at various stages of the menstrual cycle, during and after pregnancy and in menopause. The study is based entirely on vaginal smears.

Sexual Behavior in the Human Male

By Alfred C. Kinsey, Professor of Zoology, Wardell B. Pomeroy, Research Associate, and Clyde E. Martin, Research Associate, Indiana University. W. B. Saunders Company, Philadelphia. 1947.

A plea for healthier and sounder sex education based on long time surveys made by the authors and supported by the National Research Council.

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Public Health Administration in the United States

By Wilson C. Smillie, M.D., Professor of Public Health and Preventive Medicine, Cornell University Medical College. Ed. 3. The Macmillan Company, New York. 1947. Price, $6.50.

A masterly work written by a master of the subject with much revision and new matter to bring the text up to date.

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Gynecologic and Obstetric Urology

By Houston S. Everett, M.D., Associate Professor of Gynecology, Johns Hopkins University. Ed. 2. The Williams & Wilkins Company, Baltimore. 1947. Price, $6.

Revised and brought up to date with a new section on indirect cystoscopy and a description of the Aldridge operation.

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American Pharmacy

Editor in Chief, Rufus A. Lyman, M.D., Director, School of Pharmacy, University of Arizona. The J. B. Lippincott Company, Philadelphia. 1947. Price, $7.

For the pharmacy student.

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Brief Psychotherapy

By Bertrand S. Frohman, M.D., and Evelyn P. Frohman, with foreword by Walter C. Alvarez, M.D. Lea & Febiger, Philadelphia. 1948. Price, $4.

This book gives a clear and easily understood description of the clinical aspect of neuroses. While it is primarily a book for the practitioner, the student will find it very informative. The subject is presented well.

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Related Form and Biological Problems

S. J. Holmes, Berkeley, California. University of California Press. 1948. Price, $5.

A discussion of biological problems. Not for the lowly student.

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Laboratory Experiments in Physiology

By W. D. Zoethout, Ph.D., Professor Emeritus of Physiology, Chicago College of Dental Surgery. Ed. 4. The C. V. Mosby Company, St. Louis. 1948. Price, $3.

Revised.

Communicable Disease Control

By Gaylord W. Anderson, M.D., Mayo Professor and Director School of Public Health, University of Minnesota, and Margaret G. Arnstein, M.P.H., Assistant to the Chief, Division of Nursing, U. S. Public Health Service. Ed. 2. The Macmillan Company, New York. 1948. Price, $5.

A book for the health officer and the public health nurse. The first part of the book deals with the control of communicable diseases in general, the second with the prevention and treatment of particular diseases. Much new material has been added, especially a chapter on rheumatic fever.

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The Epithelia of Woman's Reproductive Organs: A Correlative Study of Cyclic Changes

By George N. Papanicolaou, M.D., Ph.D., Professor of Clinical Anatomy, Cornell University Medical College; Herbert F. Traut, M.D., Professor of Obstetrics and Gynecology, University of California Medical School, and Andrew A. Marchetti, M.D., Associate Professor of Obstetrics and Gynecology, Cornell University Medical College. The Commonwealth Fund, New York. 1948. Price, $10.

A comprehensive report on the cytology of the epithelial structures of the normal human female genital tract. A ten year study. A new interpretation of functional changes is presented and a baseline of the normal is drawn against which gynecologists can more easily recognize and identify aberrations. The accompanying colored illustrations are not only illuminating but are real works of art.

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Psychological Atlas

By David Katz, University of Stockholm. Philosophical Library, New York. 1948. Price, $5.

Psychology made clear by means of numerous (400) illustrations. At least, that is the contention of the author.

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Introduction to Human Physiology

By William D. Zoethout, Ph.D., Professor Emeritus of Physiology, Chicago College of Dental Surgery. The C. V. Mosby Company, St. Louis. 1948. Price, $4.

Designed for high school students who do not intend to take more advanced work in physiology. Questions at the end of the chapters are a splendid idea and give the student an opportunity to catch up with what he has learned. Even the medical student would find this book helpful to him.

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